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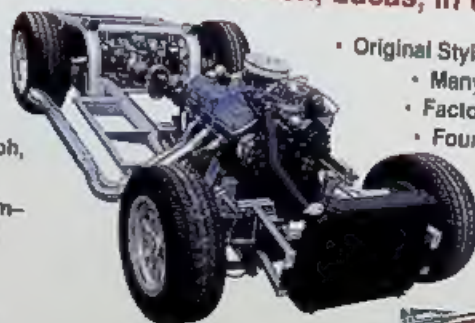
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Car and Driver Magazine, December, 1991.



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KIT CAR

THE CAR BUILDER'S AUTHORITY

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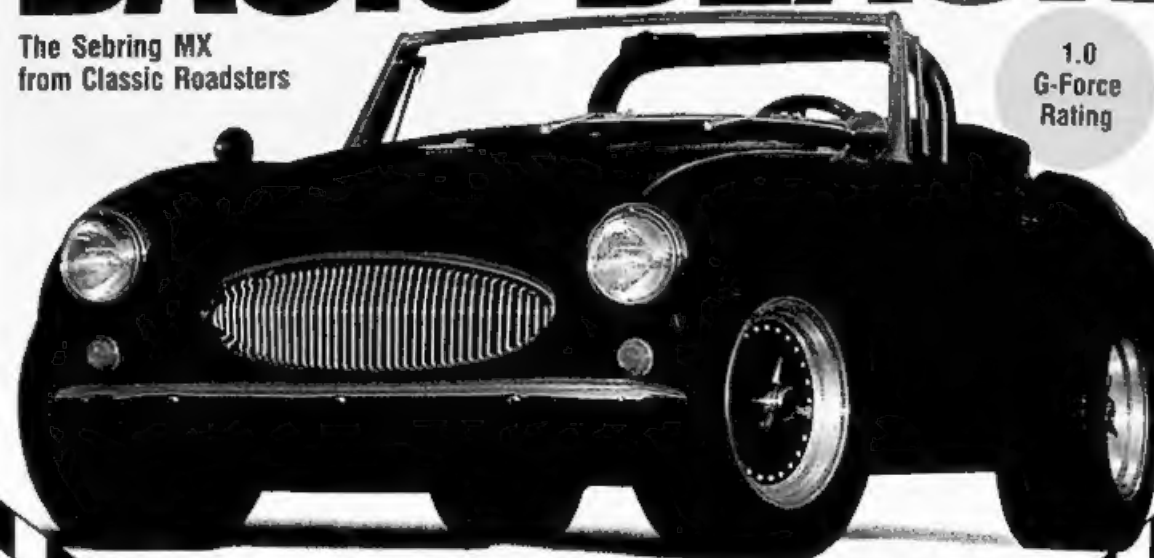


ON THE COVER:
It doesn't get much faster looking than a slippery Countach replica. Joe Greeves managed to snap a few shots of Final Concept's turnkey Lambo clone in a quiet moment at Daytona. The inset photo shows a happy throng of Unique Motorcars' owners at the recent Cobrafest gathering. Aside from running their cars hard, they are no doubt happy because of all of the Southern hospitality the company delivers. Photo by Dan Burnil.

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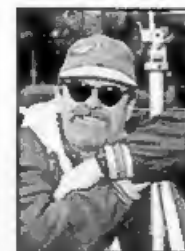
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GRAY BEARDS ON PARADE

We seem to suffer the same plight as the street rod business; the graying of our participants. As we grow older in our hobbies, we need to consider ways of attracting younger potential specialty-car builders to maintain and grow the industry.

I think we do a considerable disservice to our ranks by continually moving upscale and thus out of reach for younger enthusiasts. Where have all the entry-level kits gone? As a specialty-car industry we tend to promote high-dollar projects and seemingly ignore the builder on a small budget. Pride in the accomplishment, however, doesn't have a price tag.

A case in point was an extreme experience at a car show I drove to in a cool, eye-grabbin' Rodster that cost about \$12,000 to build. A TV news crew showed up and walked directly to the car, asking if they could do their live news spot while sitting in it. The arrangements were made, and ultimately thwarted by the show promoter's objections that a \$70,000 sponsor's car should be used instead. In her closing report of the show, the reporter mentioned the cost, and you could hear TV channels being switched all over St. Louis. I feel strongly that to have done the report from my ride and mentioning its cost to build, the reaction would have been more like, "Wow. That's cheaper than a production car and looks like a lot more fun." While we understand the value of promotion, it was a lost perfect opportunity to reach a somewhat untapped audience and show the affordability of our hobby, and not scare potential builders away thinking they could never afford to build such mega-dollar cars. Magazines are also guilty, and this magazine perhaps guilty to a lesser degree. It's our aim to cover the waterfront in every issue and present a broad range of products to fit virtually every budget. We use the upscale cars as dream factors, examples to which we all aspire. So, can you think of any logical ways we can grow our business? We talk about and think about this subject quite a bit, and haven't, until recently, landed on any logical direction. Since we began talking about the future of kit cars, though, we

attended the annual Carlisle show which, in the past few years, has included an Import Power Jam as part of the festivities. That segment is aimed, of course, at the hottest part of the car world—import performance cars—which represent everything from rolling boom boxes to hot quarter-milers. Their owners have been referred to as the hotrodders of the new millennium because they take a perfectly good inexpensive production car, hop it up, and change its appearance so as to be distinctive. The aftermarket is loaded with performance equipment, suspension gear, and nearly everything needed to produce very cool cars that perform.

At the show, several of us gray-beards were standing around talking and took notice of a couple of stock, ubiquitous Japanese cars sitting side by side nearby. Looking at the very similar windshields and side glass of a Honda Accord and a hunkered-down Acura NSX, the answer to our what's-next query seemed obvious. Here's a young, new audience of car builders who understand what it takes to produce a distinctive, hot car, but who probably haven't considered a kit car. Sure, they graft body panels and wings to their cars, but what about using their car as the foundation for something totally custom, something like—oh, I don't know—a body that has the aura of an NSX maybe. It wouldn't take too much engineering to figure out a way to take the whole front-wheel drivetrain, as a unit, and transplant it into a mid-ships placement, and then utilize as much of the donor's other components as possible. It could also be configured as a rebody project perhaps, much like the Fiero conversions. It could even take on a single-donor-car personality like those custom chassis cars that utilize Mustang 5.0 components.

I know a couple of gray-beards who would relish owning and driving a little mid-engine rocket pushed by a 300hp Corvette killer. Who wouldn't? We've talked up these ideas to as many manufacturers as we can, so don't be surprised to see some novel new vehicles appearing on the pages of this magazine, and maybe some of our sister mags like *Super Street*. We know of one builder who took the bait and is already hard at work developing a neat kit. Remember, you heard it here first.—Jim Youngs

MC

MAILBOX

kitcar@petersenpub.com

REAL KIT CARS

I am a kit car owner (five cars presently). I drive them all and built them all. I am not like most people who buy them or subcontract them out.

What I am so pissed about is you do not write anything about the average owner, or things "real" kit car people do.

Enclosed are write-ups from the Liège (Belgium) to Agadir (Morocco) and back rallye held last year. Nothing is heard about these real kit cars, not show Cobras. This was a rough journey, with all kinds of adversity to overcome—freezing cold in the Pyrenees Mountains, heat in the desert, bad roads, stoning by Arabs. And these are real kit car owners who overcame it.

There is another rallye from Liège to Targa (Sicily) and return to Liège. Give them some support, and maybe some candy-ass Cobra will enter.

The cost of entering is \$8,400 and is broken down as follows:

- \$1,000: round-trip to Belgium, driver;
- \$1,000: round-trip, codriver;
- \$1,000: entry fee;
- \$1,400: fuel (from \$4-\$6/gallon);
- \$3,000: ship car to and from Antwerp;
- \$1,000: incidentals—lodging, licenses, and insurance.

I tried to get backers to help me last time, but entrants are restricted to two small spots on a car for advertising.

Thomas Kaye
Jacksonville, FL

Thanks for sending along the reports of that long-distance boogie. We have to agree with you that great adversity had to be overcome. If we read it correctly, entrants consisted mostly of odd neoclassics and Lotus 7 repops. We have to take issue with you, however, on your description of "real kit cars" and "average owners." Just because a guy takes his car on a hazardous, long-distance trip which just happened to include adventurous encounters with tribal stonings, mud bogs, and smooty camels, doesn't make him an average owner driving a real kit car.

We regularly talk about folks

making cross-country trips, using their cars for making money, setting speed records, racing, and the like. Spending nearly \$10,000 to enter such an adventure sounds like a bit of folly to us. The fact that the organizing body limits the amount of advertising space on the cars says to us that they want to keep it a continental thing. If, however, we lived on that side of the pond and had a suitable car (maybe even a "candy-ass Cobra" with some ground clearance) we might be up to the challenge. We like these participants to those hearty fellows who take on the Camel Trophy adventure just for the sake of trial by adventure. They aren't regular guys, by any stretch of the imagination. They're more likely adrenaline junkies who spend several weeks in a jungle somewhere with little other than their trusty Land Rover, a Swiss Army knife, waterproof matches, and enough materials to construct a pontoon bridge. Quite honestly, our experience indicates that Kit Car readers (like yourself) relish the build process and enjoy the admiration, which makes them real kit car people owning real kit cars.

READER HELP

I enjoy your magazine very much and have been a subscriber for several years. Keep up the good work.

I know you help your readers with kit car-related problems and, since I first saw the PISA Artero in your magazine, it is partly your fault that I'm in the fix I'm in. I think you should be willing to help me out.

After seeing the Artero in your magazine, I fell in love with the fantastic lines and immediately went out and purchased a Pontiac Fiero and a PISA Artero body kit. I then told my wife that I would require her garage for "about three months or so." Then, I began my project.

Well, it's now two and a half years later and I just completed my car. It is really beautiful, even more beautiful than the one you wrote about being given away at the Carlisle show. In fact, it is too beautiful to sit outside. I told my wife that a little snow shoveling (to get to her car) was good for her and that the sun wouldn't harm her paint like it might the Artero's. This held her off for a while, but somehow she has wised up and told me to return her garage immedi-

ately! She said if I couldn't give up the car, I would have to leave with it.

Since you are partly to blame for my situation, I think you should provide me with a place to live and a protected place to park my beauty. If you won't do this, then I think you should at least buy my Artero and give her a good home.

Gerald Eagan
Los Alamos, NM

You relate a familiar story, one that even our editor has experienced numerous times. Here are a couple of tips that you may have missed. Short of posting a romance ad when looking for potential spouses that reads "Seeking attractive female with hot car. Send photo of car," think about offering to dig her car out of the snow even if it means getting up earlier than you like. Experience has shown that spouses love the chivalry, and delight in a toasty, warmed-up car with cleared windows in which to drive to work. We are not even partly to blame for your kit project and subsequent marital problems. We've warned you over and over not to fall in love with these cars, not to try pulling the wool over your spouse's eyes, not to expect your wife to understand the man/machine relationship, and not to expect any appreciation of your project until it's done and she discovers how good she looks in it. Sure, we'll find a home for your Artero, right after we find spots for all of Editor Youngs' unfinished vehicles. Don't hold your breath! We can't afford to buy it either. We're afraid you're on your own on this one, but we wish you all the best as you return to the single life.

MYSTERY ID

The "Mercedes" pictured in the July issue's Mailbox article is actually a Jaguar! It looks to me like an early Antique and Classic SS-100. The squared-off cowl, tubular bumper, and bustle rear sure look a lot like the one I have in a box in New Jersey. I'll bet it's a VW-based model from the early '70s.

Dan Hooven
Calistoga, CA

Good call! We missed it completely and just took the letter writer's description without checking it. It's hard to determine if the car was an



Antique & Classic model since several companies built various versions of that design. Antique & Collectible Autos (800/245-1310) still offers an SS-100 kit. The one pictured here is from Time Machine (904/796-6860).

WRAITH UPDATE

You guys at Kit Car are unreal. In the Kit Tech section of the May '99 issue, Chris McMahon asks several questions concerning the kit featured in the movie, *The Wraith*. You gave a background information on the vehicle detailed enough to give him exact height, width, wheelbase, and even weight. However, no kits were to be found in production as of today. Myself, being very interested in the movie and in love with the car, did a little research. I'm not a mechanic or a computer nerd and I don't know a lot about kit cars, but half an hour on the Internet, and what did I find? You guessed it—someone with access to the plans for the car who happens to sell turnkeys and partial builds of the Wraith II. His online address is mcwalkerusa@netscape.net, and he's also known as Michael Walker, 770/517-6014.

I'm not a professional researcher, but I do think that if you could do enough research to give exacts specs, at least go the extra step. Nothing personal—I love the book. It's just a little constructive criticism. Hopefully, Chris and a few more of your readers will benefit from this information.

With that said, I have a question for you. Keeping in the theme of

famous cars, I need information about the car featured in the '80s TV show *Hardcastle & McCormick*. I know that there was a modified Manta Montage in earlier episodes and a modified DeLorean in later episodes. I am interested in the Montage. Where can I get a kit?

Taobi Silva
Hampton Bays, NY

Thanks for the tip off on the Wraith car. We're still a little bit in the Stone Age here, having recently upgraded from typewriters and box cameras to computers. We're yet to be able to accelerate hard on the onramp to the information superhighway. As for your Montage questions, we suggest calling Warp 5 Engineering (816/228-2960), as they have all the tooling for those cars.

KC

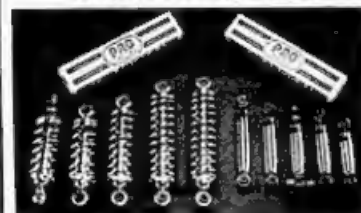
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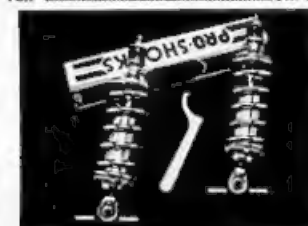
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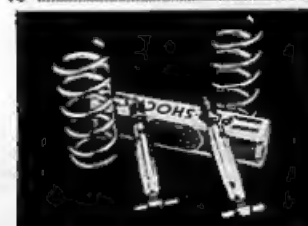


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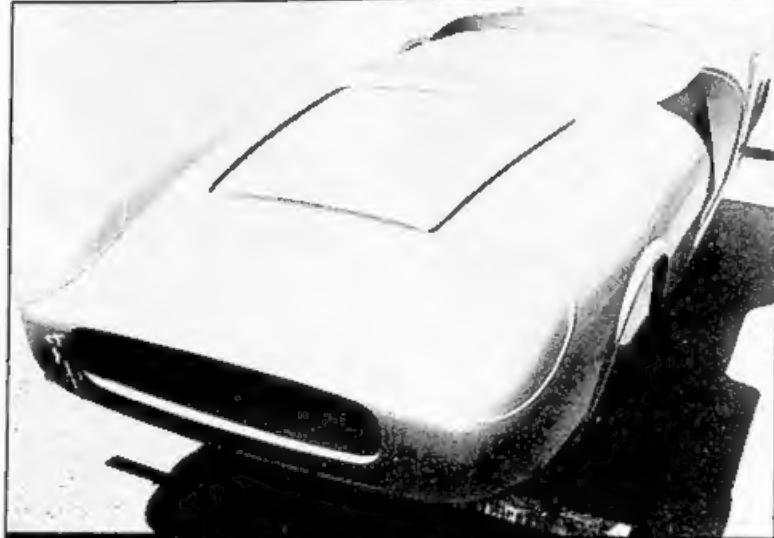
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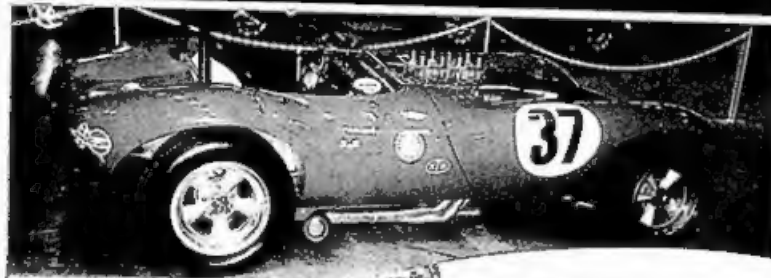


FACTORY FIVE GETS REAL BUSY

Not only has Factory Five Racing's development team been busy lately, recently introducing a big-block chassis and an IRS system that will not only fit its Cobra replica chassis, but Mustang 5.0s as well. But, they have also announced that they've purchased the design, molds, and tooling from Contemporary Classic Motor Car Company. FFR is also just about ready to unveil its own Daytona Coupe replica.

Included in the Contemporary purchase was a 250 GT Roadster which FFR will market in either V-8 or V-12 configurations, with availability scheduled by early 2000. Also included in the purchase was Contemporary's Cobra 289 FIA replica project that will fit well with Factory Five's mainstay 427-style snakes.

For more information, contact Factory Five Racing, Dept. KC, 18 Kendrick Rd., Wareham, MA 02571.



TOPLESS CHEETAH

There was precedent for chopping the top off an Auxier's Cheetah coupe replica; successful racer Ralph Saylor campaigned a coupe in the mid-'60s and was so frustrated with the heat inside the cockpit, took a hacksaw to the roof. He went on to succeed in the topless CRO-SAL Special, winning many significant venues.

Robert Auxier is the man behind this roadster version of the Cheetah, and built the car you see here as a turnkey for a customer. The fiber-

glass body rides on a chrome-moly round-tube chassis, and tips the scales at a mere 1,550 pounds. The car sports four-wheel Vette brakes, coilover suspension, and Muncie four-speed transmission. The distinctive car has a formidable appearance and is reportedly very competitive at the track. The company also builds turnkey Cheetah coupes.

For more information, contact Auxier's Cheetah Race Cars, Dept. KC, 4352 W. Paradise Ln., Glendale, AZ 85306; 602/843-1175.

MARK YOUR CALENDAR

September 10-12: 2nd Colorado Classic, Pikes Peak Raceway, Colorado Springs, CO. Rods, customs, classics, and musclecars through '72. Contact Goodguys, 925/838-9876.

September 10-12: Fall Carlisle Mid-West Collector Car Swap Meet, Show & Car, Interstate Center, Bloomington-Normal, IL. Swap, show, Contact Carlisle Productions, 717/243-7855.

September 11-12: 17th Annual Handcrafted Auto Concours, Berkeley Marina, Berkeley, CA. Northern California Kit Car Club hosts show, awards, banquet. Contact Vern Hanson, 925/938-1442.

September 12: 4th Annual Fierorama, McDonalds Restaurant, Oak Brook, IL. About 130 Fieros of every description are expected for this show. Unusual awards include High-Mileage Daily Driver. Contact Northern Illinois Fiero Enthusiasts, James Hallman, 630/688-8888.

September 17-19: 8th East Coast Nationals, Dutchess County Fairgrounds, Rhinebeck, NY. Rods, customs, classics, and musclecars through '64. Contact Goodguys, 925/838-9876.

September 25-28: 23rd Annual Fall Englishman 30, Old Bridge Township Raceway Park, Englishtown, NJ. Swap meet and show for rods, customs, trucks, antiques, and classics. Contact Vince Napp, 732/446-7800.

October 2-3: 7th Lone Star Nationals, Texas Motor Speedway, Ft. Worth, TX. Rods, customs, classics and musclecars through '72. Contact Goodguys, 925/838-9876.

October 3: 8th Annual Fall Classic VW Show & Go, Old Bridge Township Raceway Park, Englishtown, NJ. Show, competition, bracket drags. Contact Michael Napp, 732/446-7800.

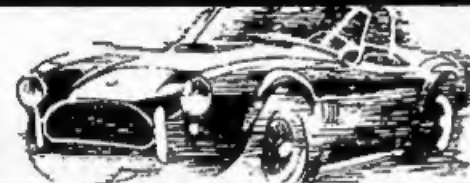
October 15-17: Club Sandwich, River Palms Resort, Laughlin, NV. Association of Handcrafted Automobiles and Arizona Kit Car Club host a show, awards, and banquet. For info, contact Harout Markarian (AHA), 760/949-8494 or David Hartman, 949/457-9461.

October 22-24: 6th Southeastern Nationals, Charlotte Motor Speedway, Charlotte, NC. Rods, customs, classics, and musclecars through '72. Contact Goodguys, 925/838-9876.

November 13-14: 10th Autumn Get-together, Pleasanton Fairgrounds, Pleasanton, CA. All years, cars, and trucks, swap meet. Contact Goodguys, 925/838-9876.

November 14: San Diego Auto Swap, Show & Sale, Qualcomm Stadium, San Diego, CA. Free dash plaques, trophies, free refreshments for vendors. Contact 619/484-9342 or www.carsnet.com.

BRANDA Shelby & Cobra



New Custom Wheel "Logo" Valve Caps

Machined to exact specs to fit all standard air valve stems. Each cap is fitted with a Buna O ring for proper sealing and end is recessed to hold a Lexan covered logo. (Non original for Cobra, Shelby, and Mustang). Set of four \$15.95
Logos available: • COBRA, white w/ red border/blue snake and white letters • FORD, blue with silver letters

Original Shelby American T-Shirts

Cobra Champion has CS logo on front with Cobra, Cobra, Cobra all the way down the back. Small, med, large or X large \$12.95 ea
XXLG available \$14.95 ea



Shelby/Cobra/Mustang Genuine Wood Steering Wheel

15" diameter with 1 1/2" dished frame with polished laminated mahogany wood and polished spokes. Fits 1965 through 1970 Mustangs/Shelbys, 71-73 Mustangs and 74-78 Mustang II's. Complete kit includes Steering wheel, hub and center horn button with emblem, State year and model, if car has tilt wheel, and center emblem chrome. \$169.95
A Cobra B 47-289 C 67-289 D Mustang E 1965
NOTE: Applications now available for Chevrolet steering columns

Classic Mirrors

1965-66 Shelby/Mustang GT 3 1/2" Lens. Talbot Jr. Look-alike \$32.95

Same as above, only with longer 4 3/4" base \$34.95 ea.
Triple Chrome Plated. These are great for other Ford Powered cars also.

Powered by Ford Side Emblem

Used on fenders of small block Cobra Roadsters \$16.95 ea.

427 Ford Cobra Side Emblem

Used on fenders of big block Cobra Roadsters \$16.95 ea.

Cobra Hood/Trunk Emblem

Exact repro of the 2" dia. round red, white, blue Cobra emblems used on later 289 and 427 Cobras \$14.95 ea.

Cobra Oil Pans

• 221-260-289-302 alum. 7 1/2 qt. Cobra lettered "T" pan (repro.) originally used on 65-66 GT350 \$324.95
• 351 "Cleveland" (high capacity). Cobra lettering and fins on both sides. Fits Mach I, Boss-351, street rods. \$424.95
• 351 "Windsor" (high capacity). Cobra lettering and fins on both sides. Call for Availability
• 390-427-428 aluminum 6 1/2 qt. with "COBRA" lettering on both sides \$324.95

429/460 Cobra Oil Pan

8 qt. capacity, 356 alloy. Fitted aluminum T-shaped. Front sump with correct COBRA lettering and highlighted fins. Includes baffles. Super quality. \$432.95 ea.



The Original Cobra Team Shirt

Guardsman Blue 50/50 poly-cotton with white slashes under the arms and "COBRA" embroidered in large letters across the back. "CS Shelby" logo patch on front. S,M,L,XL \$54.95 ea.
XXLG \$59.95 ea.

Shelby/Cobra Tie:

Dress in the Shelby Fashion. Speeding images of the great Shelby (Shelbys, Cobras, GT40) cars come to life in the artwork of renowned automotive artist Dennis Simon. These luxurious 100% silk neckties in shades of blue and dark red will look terrific with your best suit or denim shirt. If you say you don't wear ties, then you haven't seen this one. \$28.95 ea



Cobra, Shelby, "FE" Big Block Valve Covers

Natural finish Cobra 427 lined alum \$204.95 pr
Natural finish LeMans lined \$204.95 pr
Natural finish Cobra 428 lined \$204.95 pr
Black finish Cobra LeMans lined \$151.95 pr
• Chrome plated pent roof 427 \$110 pr
(on special) Regular list price \$149.95



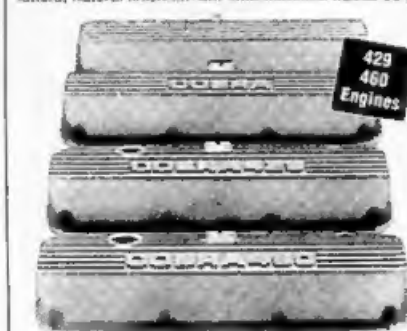
New Color Posters

1. Competition Ford GT 40: The Ford that beat Ferrari, beautiful 24 x 36" full color. Factory Gulf Team Car. Light blue with orange \$9.95 ea.
2. Cobra "Daytona Coupe": 1965 World Manufacturers champion. CSX 2300, one of 6 built, Carroll Shelby owner. Beautiful 24x36". Blue with White \$9.95 ea.
Shipping fee: \$4.00 for one or both.



Cobra Aluminum Valve Covers

Small block 260-289-302-351W 1966-70 polished fins with Cobra Power by Ford, black crinkle finish with solid letters \$109.95 pr
1965-66 polished fins with Cobra Power by Ford open letters, natural finish \$133.95 pr



Finned, Natural Finish Aluminum Valve Covers for 429-460 engines

Choose Cobra 460, Cobra 429, Cobra or straight finned. Polished lettering, excellent for Cobra, Torino, Cobra kit car, Mustang, trucks and other Hi-po Fords \$204.95 per pair



No name straight finned oval air cleaner tops available. Oval air filter elements for air cleaners above. \$12.95 ea. or buy a 6-pack for \$71.95

Cobra 427" original spec engine accessories

1. 427" chrome pent roof valve covers \$149.95 pr (choose with breather holes or plain)
2. Stelling & Helling's 8 1/2" chrome air cleaner. \$69.95 ea (complete with filter, hardware and decal)
3. Aluminum cold air box "turkey pan" for single quad carb only (unpolished) \$199.95
4. 427 Cobra fender & valve cover emblems \$16.95 ea

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Mon-Fri: 8AM-4PM, Sat: 10AM-5PM • Phone orders accepted evenings.

Add 8% for shipping insurance (\$4 minimum shipping fee).



EURO UPHOLSTERY KIT

Gary's Custom has just completed this Euro-style interior kit to fit Fiero and Fiero-based kit cars. The kit consists of a two-piece dash with instrument cluster, faceplate for VDO gauges, center A/C vents, center console, shifter and boot, seat covers with French seams, custom door panels, carpet kit, and floor mats. Prices start at \$2,285. For more info, contact Gary's Custom, Dept. KC, 419 Den-high Blvd. No. F, Newport News, VA 23608; 757/833-8883; www.gscustom.com.



GET YOUR KITS ON ROUTE 66

The mid-point of historic Route 66 is in Adrian, Texas, near the famous Bent Door Cafe (the door is actually bent to follow the contour of the building). The currently abandoned Bent Door has been featured on numerous Route 66 specials on TV and is a recognized landmark (look for it on 3rd Street in Adrian). A special attraction for kit car fans is the three homebuilt cars that are deteriorating out front. One is a three-wheeler that appears to be similar to plan sets sold by Quincy-Lynn Enterprises in the '80s. Another (the middle car in the photo) is a homebuilt sports car with metal body panels. The car in back was built from a set of plans sold by Robert Whitehead (also available through *Popular Mechanics*). It has a metal body and a six-cylinder engine. All are very rough and in need of vast amounts of rescue efforts.



LITTLE KITS

Only 12 Lamborghini Diablo Roadster VTs came into the U.S. in 1996. Chances are you don't own one. There is a small, really small, way to

quench a burning desire while you save up the bread for a fullsize replica: Revell-Monogram's 1:24-scale SnapTite® kit. This kit is 32 pieces of multi-colored plastic that's a lot less complex than the real thing. It's basically an open-top curbside kit, which means no engine and limited suspension detail. That doesn't spoil the fun, though. Most of the car's distinctive lines and attributes are present. Revell's SnapTite line features interlocking or snap-together assemblies that are held together by two small screws that connect the chassis to the body. The wheels utilize solid-axle bars that pass through the body, allowing the finished car to roll freely on its wide vinyl tires. Pressure-sensitive decals are included to represent dashboard instruments, turn indicators, and badges. A little detailing paint here and there would perk up the outward appearance, but it's not necessary.

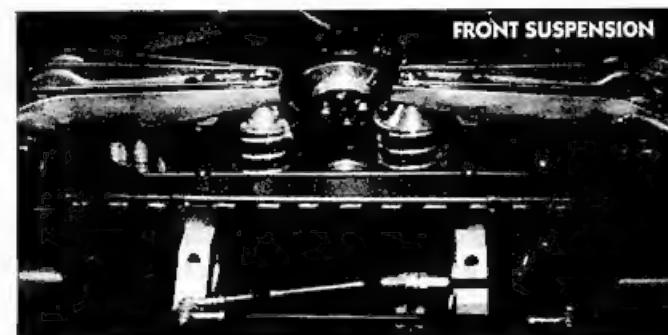
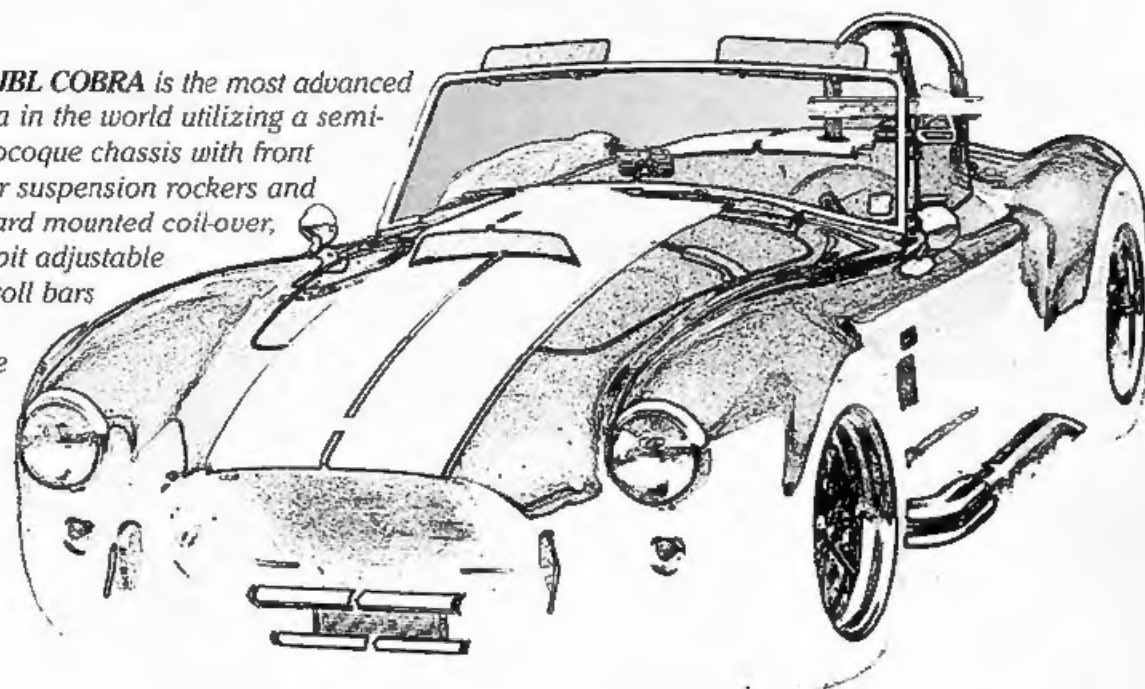
The body panels are molded in dark metallic blue, the undercarriage and interior in tan, a clear windshield (always preferable), and transparent red for the taillights. The completed roadster looks quite nice as a shelf piece or can offer a great distraction for the kids when they want to play "race car" with your expensive die-cast collection. The SnapTite Diablo Roadster is part of Revell-Monogram's current lineup, so finding it should be no harder than a trip to your nearest hobby shop. Even if your real kit car still isn't finished, you should be able to button this one up in less than an hour. —Thomas Voehringer

Lamborghini Roadster
Revell-Monogram
Kit No. 85-1908
Scale: 1:24
Molded in Metallic Blue, Tan, Clear,
Transparent Red, and Chrome-plated pieces.

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The Legend Grows

The JBL COBRA is the most advanced Cobra in the world utilizing a semi-monocoque chassis with front upper suspension rockers and inboard mounted coil-over, cockpit adjustable anti-roll bars and brake bias.



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THE COMPETITION'S VIEW

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"I feel like I'm diagonally parked in a parallel universe."

HOW-TO BODYWORK VIDEOS

Some of us learn by reading, others by taking classes, and the rest prefer to watch instructional videos (in our case, we need all three). If you are a video fan, these instructional VHS tapes from Scott Bruning at ZTherapy can be a big help. Bruning is a do-it-yourself guru for the Datsun Z-car crowd and sells a variety of tapes on tune-ups and such, as well as a line of carburetor parts and services. The tapes with the most appeal to *Kit Car* readers are "Fiberglass Installation and Repair" and "Secrets of the Automotive Painter." Bruning is a hands-on kind of guy, and these videos won't win any awards for production values. However, they are packed full of hard-core information you won't get in most of the slick stuff put out by product manufacturers.

In "Fiberglass Installation and Repair" Bruning takes you through the installation of a fiberglass aero kit on an early 240Z. He covers the problems that all such installations run into. The parts don't fit all that well, and he shows how to correct the problems so they won't come back and haunt you later. He also shows how to deal with manufacturing defects, from which many fiberglass panels suffer. In the repair segment he fixes collision damage to a Ferrari GTO replica. He narrates the script as he works, so you get the feeling you're standing there in the shop while an experienced friend does the work.

"Secrets of the Automotive Painter" covers another topic dear to kit car builders. Bruning takes us to a large automotive paint

and bodywork store, describes the extensive range of products available, and does not hesitate to say which ones work and which don't. This is refreshingly honest and could save you a lot of headaches later. After the paint store visit, we take a tour of a body and paint shop and watch the pros at work. Every facet is covered, from priming and masking to color sanding and buffing.

ZTherapy also sells tapes dealing with 240Z convertible conversions, Datsun tune-ups, and more. For more information on these remarkably inexpensive (\$15 each) videos, contact ZTherapy at 208/587-0869 or check out their extensive Web site at www.ztherapy.com.—Harold Pace

INTERIOR PANELS

For you guys who thought doing interior work would best be left to the professionals, Sid Chavers, renowned hot rod interior artist, has just released the first in a series of videos called "Street Rod Interiors." In "Panels" Sid walks you through, step-by-step, the process of creating four different styles of door panels. Even though you may not be building a '32 Ford like he demonstrates on, there is a wealth of tips and tricks on making custom panels that would be applica-

ble to virtually any kind of car. Chavers covers materials, methods, measuring, layout, and details for producing stylish panels. The company also has a catalog of available upholstery supplies to serve as a one-stop source to help you complete your interior project. For more info, contact Sid Chavers, Dept. KC, 880 Aldo Ave., Santa Clara, CA 95054; 408/980-1478.—Jim Youngs



In response to our editor's July '99 column, "You might be a car guy if... You rent the movie Bullitt just to make sure you didn't miss anything good in the chase scenes."

INTERACTIVE EXHIBIT

SEMA (Specialty Equipment Market Association) announced recently the grand opening of an interactive exhibit in the Automotive Hall of Fame in Dearborn, Michigan. The Hall of Fame is a prominent repository of auto industry historical highlights and exclusive features. The new SEMA exhibit presents the historical significance of the specialty automotive market and the relationship between the accessories industry and the auto business, and how it has evolved into a powerful synergy that works to the benefit of motorists everywhere.

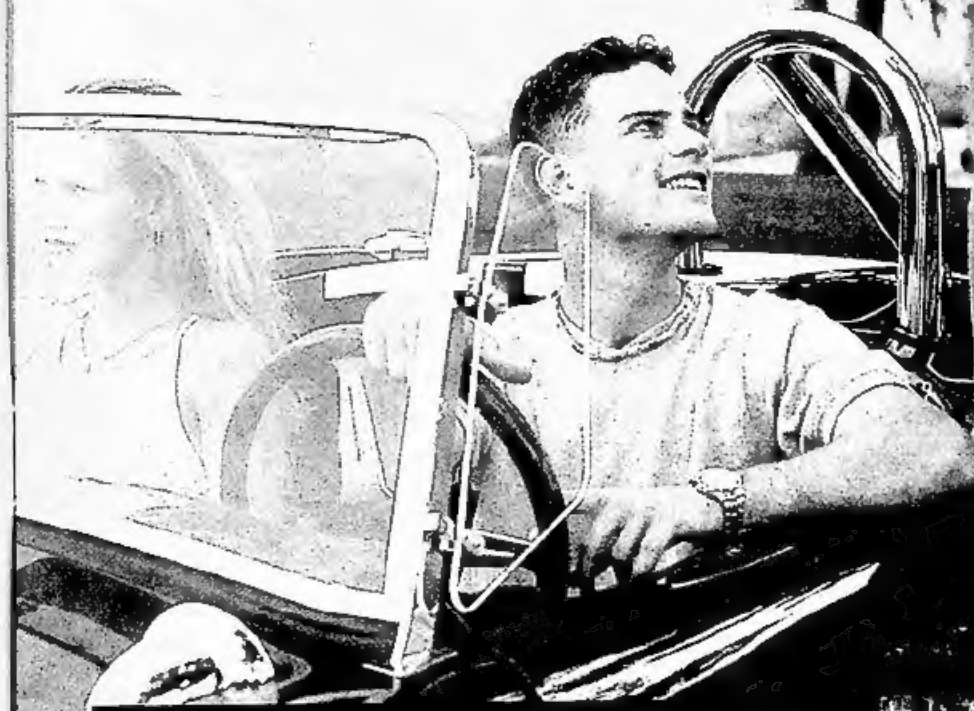
Present for the exhibit unveiling were Hall of Fame members Linda Vaughn, the first lady of racing; Els Lohn, one of the founders of SEMA; and Bob Spar, one of the pioneers of safety standards in racing.

EDELBROCK WINS INDUSTRY AWARD

Edelbrock's new RPM Air-Gap manifold was named the '98 SEMA (Specialty Equipment Marketing Association) Best New Performance Street Product. It is the first dual-plane manifold with a race-proven air-gap design. Aimed at small-block Chevy engines, the RPM Air-Gap high-rise intake manifold utilizes the latest in computer-design technology. The design eliminates heat under the intake runners to provide a cooler, denser charge of air/fuel mixture. Contact Edelbrock Corp., Dept. KC, 2700 California St., Torrance, CA 90503; 310/781-2222.

KC

Not everyone loves my car...



One challenge you'll encounter as an LS427 owner is enjoying its company alone: wherever you go, it attracts admirers and stirs a few passions.

The beauty's in the details: run your hands over the sculpted fender flares; note the smooth seams, the clean lines, the muscular, menacing stance, the thicker rollbar. Our careful attention to detail is what distinguishes your Lone Star Cobra replica from all others.

Lasting beauty: your Lone Star 427 roadster's body is handlaid, using only premium vinylester resin for unsurpassed uniformity, durability and fit & finish.

Under the skin: you'll uncover nothing but the finest componentry. A robust, superbly-crafted chassis, ready for track or street. Overbuilt? Perhaps. But you can be confident that your LS427 frame incorporates the industry's highest standards of rigidity, safety, performance. If you spring for the top-of-the-line Elite 427 turnkey serpent, you get a thundering, Larry Lingafelter/Edelbrock®-equipped FE big-block powerplant teamed with a Tremec® 5-speed, poised to brush away all challengers.

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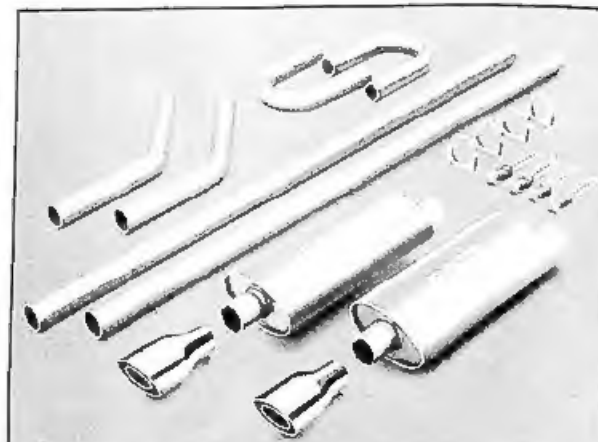
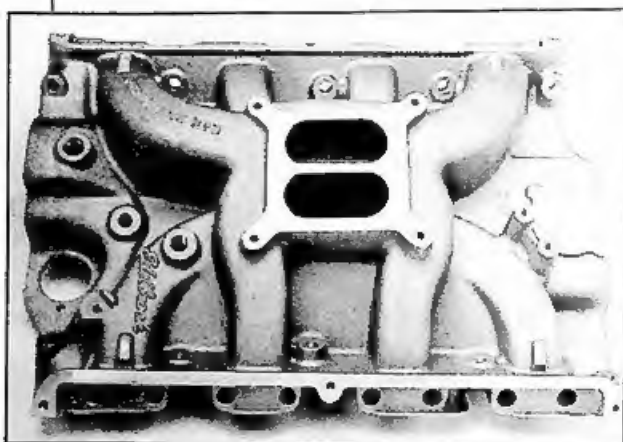
Fax: (817) 439-5722

*Please note our new location and phone numbers.

... then again, not everyone has to.

Performance Products Buyer's Guide

A Passel of Goodies to Help Your Kit Car Perform

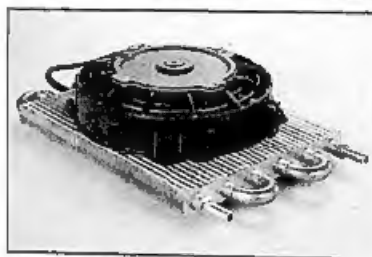


BIG-BLOCK FORD

Edelbrock has introduced a Performer RPM manifold aimed at non-emission, high-performance street 390-428 Ford FE engines. The manifold is said to have a broad operating range from 1,500-6,500 rpm for street use and high-end horsepower. It is a dual-plane, constant cross-sectional area runner design with 180-degree runners. Dyno testing on a 390 engine fitted with Edelbrock carb and aluminum cylinder heads produced 418 hp and over 430 lb-ft of torque. Also dynoed was a 427 medium-riser engine which churned out 501 hp. For more info, contact Edelbrock Corp., Dept. KC, 2700 California St., Torrance, CA 90503; 310/781-2222.

BELT-DRIVEN FUEL PUMP

High-horsepower engines require large volumes of fuel, and Holley's new belt-driven fuel pumps are designed to meet such fuel demands. Units are available to provide fuel requirements for engines up to 850 hp. Belt-driven pumps provide a linear increase in fuel pressure and volume as rpm increases. For more info, contact Holley Tech Service, Dept. KC, P.O. Box 10360, Bowling Green, KY 42102-7360; 270/781-9741; www.holley.com.



COOL TRANNY

Flex-a-lite has developed a compact electric fan/transmission oil cooler combination for cars with insufficient Ram Air or limited grille space. The fan draws 9 amps and pulls 300 cfm. The fan can be activated with an optional thermostatic control. The remote oil cooler features copper tubes for good heat transfer, billet aluminum barbs, and high-efficiency turbulators. For more details, contact Flex-a-lite Consolidated, Dept. KC, P.O. Box 580, Milton, WA 98354; 800/851-1510; www.flex-a-lite.com.



STAINLESS EXHAUST KIT

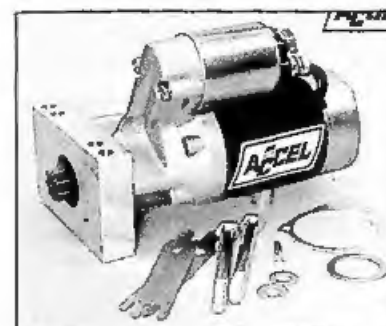
Borla has put together a Universal Hot Rod stainless exhaust kit with everything needed to build a complete header-back system. Borla makes its components from aircraft-quality T-304 stainless steel and offers the kit with mufflers, polished 4-inch "Phantom" tips, and complete hardware. The kits are available with 2 1/2-inch or 3-inch tubing. For more details, contact Borla Performance Industries, Dept. KC, 5901 Edison Dr., Oxnard, CA 93033; 800/927-5129.



MALLORY HYFIRE IGNITION

Mallory Ignition has announced a new addition to the HyFire Ignition product line: the HyFire VIIc. It features full digital circuitry, a built-in three-stage rpm limiter (each adjustable from 1,000 to 12,000 rpm in increments of 100 rpm), and a built-in three-step retard (each

adjustable from .1 to 25 degrees). The HyFire VIIc's rpm-activated switch is adjustable from 1,100 to 12,000 rpm in increments of 100 rpm, that can be used to activate a shift light or solenoid. Also included is a high-speed advance which provides an adjustable cut-in speed. For more info, contact Mr. Gasket Performance Group, Dept. KC, 10601 Memphis Ave., No. 12, Cleveland, OH 44144; 216/688-8300.

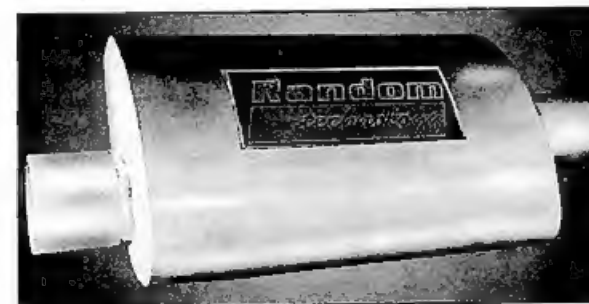


GEAR-REDUCTION STARTERS

ACCEL has announced the introduction of high-quality gear-reduction starters and components. The starters are lightweight, race-proven designs, and feature:

- dyno tested under starting load to ensure dependability and reliability;
- 33 percent smaller than most OEM starters for increased oil pan, header, and ground clearance;
- 3.75:1 gear reduction means 40-50 percent more starting torque than OEM starters;
- full ball-bearing construction means less internal friction and more torque transferred to the engine.

For more info, contact Mr. Gasket Performance Group, Dept. KC, 10601 Memphis Ave., No. 12, Cleveland, OH 44144; 216/688-8300.



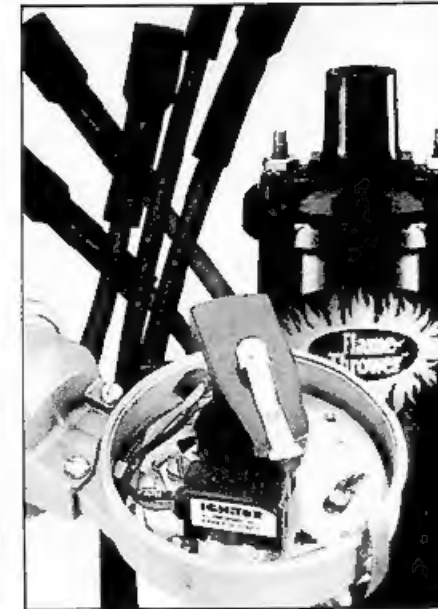
STAINLESS POWERMAX

Random Technology has designed these stainless steel PowerMax mufflers to provide maximum power output combined with a pleasing, throaty sound. The key to the muffler's performance is the scientifically designed flow path of the exhaust. The mufflers are fully polished, are manufactured of 304-gauge stainless steel, and are covered by a limited lifetime warranty. For more info, contact Random Technology, Dept. KC, 1313 Temple Johnson Rd., Loganville, GA 30052; 770/978-0264.



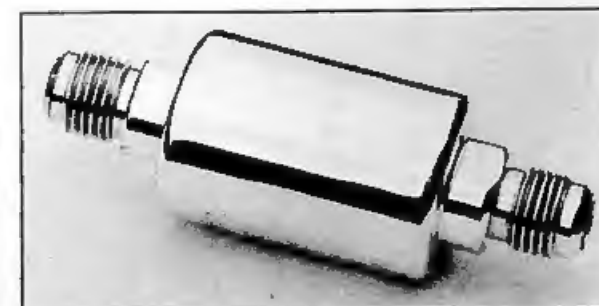
HOT WIRES

SplitFire offers these patented Dual-Mag design spark-plug wires that feature two premium Kevlar-reinforced magnetic suppression cores which are each individually wrapped with a stainless steel winding. The exclusive design has only 250 ohms of resistance per foot at any rpm, compared to single-core wires that typically have 500 to 750 ohms of resistance. The lower the resistance, the less voltage that is required to fire the plug. The wire sets are available in a wide range of applications. For more info, contact SplitFire Inc., Dept. KC, 4065 Commercial Ave., Northbrook, IL 60062; 847/559-2000.



GO FAST, LOOK STOCK

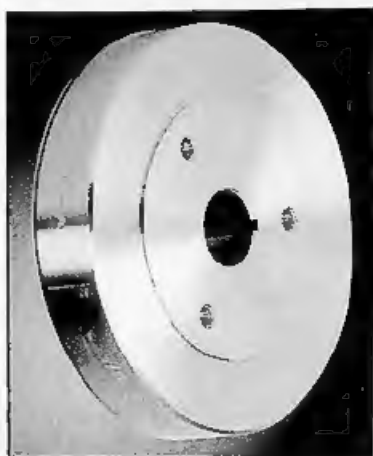
PerTronix offers an ignition system upgrade that appears stock. The Ignitor converts a points-style distributor to a solid-state electronic ignition and hides entirely inside the distributor cap. Tests have shown horsepower increases, improved fuel economy, and extended spark-plug life. The company has also introduced its 40,000-volt Flame-Thrower coil to add more spark to the ignition. Also added are low-resistance spark-plug-wire sets featuring a dual-current path. For more details, contact PerTronix Inc., Dept. KC, 440 E. Arrow Hwy., San Dimas, CA 91773; 800/827-3758.



COMP FUEL FILTER

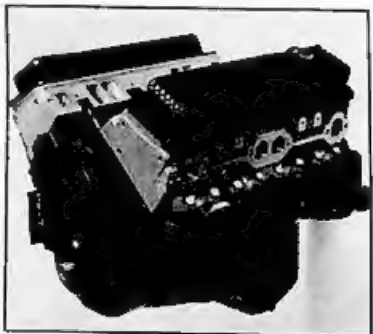
Russell Performance has introduced a redesigned Competition Fuel Filter with a smooth, slim new look. The re-engineered filter features a smooth exterior body canister and is offered with AN -6 and -8 male outlets. It has a disc-type filter element that can be cleaned and replaced. A dual sealing system ensures the ultimate in filtration and sealing. Flow rate of the filter is up to 130 gallons per hour, making it ideal for engines up to 1,000 hp. For more details, contact Russell Performance Products, Dept. KC, 225 Fentress Blvd., Daytona Beach, FL 32114; 904/253-8980; www.russellperformance.com.

Performance Products Buyer's Guide



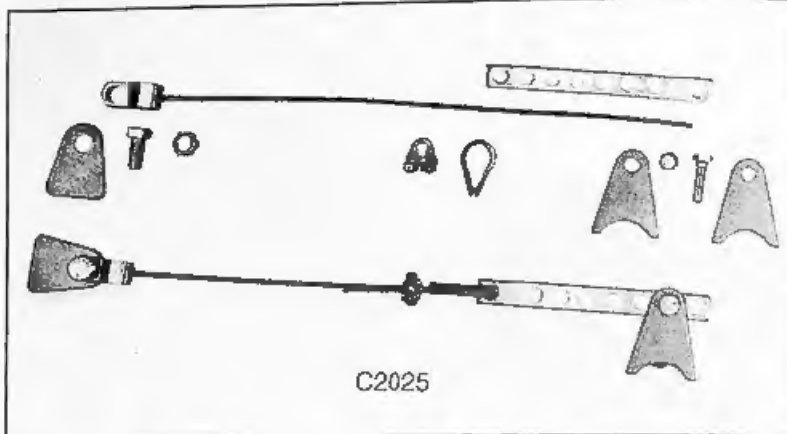
STREET VIBES

Since high-performance street engines are at risk from torsional vibration damage, a Streetdamp may just be called for to provide protection. The unit utilizes a special viscous fluid to control torsional crankshaft vibration at all engine speeds. Streetdamp is made with steel billet housing and includes timing marks. For more info, contact Vibratex Inc., Dept. KC, 11980 Walden Ave., Alden, NY 14004-9790; 716/937-3603.



MAIL-ORDER HORSEPOWER

Autocenter offers this 320hp small-block crate engine for light-duty applications. It features Corvette aluminum cylinder heads, 9.5:1 compression ratio, nodular iron crank, two-piece rear main seal, four-bolt mains, forged rods, dual dipstick, timing-chain cover, valve covers, oil pump, and oil pan. Upgraded version of this engine includes emissions-legal cam and Edelbrock or Trick Flow aluminum heads. For more info, contact Autocenter Inc., Dept. KC, 3137 Halifax St., Dallas, TX 75247; 214/634-3900.



LAUNCH TIME

Hard-launch drag racers might find these Front Travel Limiter kits valuable. Competition Engineering offers a pair of cables that mount to the chassis and lower control arm on each side of the car to limit front suspension separation on launch. The kit features a 7-position adjustment to dial in reaction time and eliminate problems associated with extreme wheelstands. For more info, contact Competition Engineering, Dept. KC, 80 Carter Dr., Guilford, CT 06437-0570; 203/453-5200.



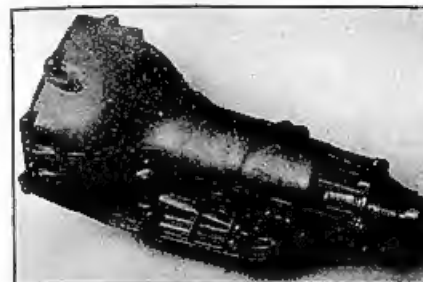
TIGHT SEAL

APA Industries has developed these Seal-Tight flange exhaust gaskets. They are made of a special "dead soft" aluminum gaskets, come in several sizes, and include stainless steel nuts and bolts. The gaskets are reusable and will not burn out. For more info, contact APA Industries, Dept. KC, 10505 San Fernando Rd., Pacoima, CA 91331; 800/515-6438.



FORGED BILLET RODS

Manley's new aluminum Super 70 Series of machined, forged connecting rods are aimed at small- and big-block Chevy applications. The advanced alloy is said to provide an ideal combination of strength and low weight at an affordable price. These rods are fully machined for maximum weight reduction. For more info, contact Manley Performance, Dept. KC, 1960 Swarthmore Ave., Lakewood, NJ 08701; 732/905-3366.



BLUEPRINTED TRANNIES

A-1 Automatic Transmissions offers custom-built automatics for a wide variety of applications. Each unit consists of a precision-blueprinted tranny equipped with heavy-duty bands, clutches, and steels, plus a modified valve body for improved shifting crispness and complete upshift/downshift control. A-1 configures each tranny to the exact needs of the customer, utilizing the shifting characteristics best suited to the application. Also available are matched torque-converter packages. For more information, contact A-1 Automatic Transmissions, Dept. KC, 7359 Canoga Ave., Canoga Park, CA 91303; 818/884-6222.



DRIVELINE FASTENERS

ARP offers a complete line of drive-line fasteners including flywheel/flex-plate bolts, torque-converter bolts, pressure-plate bolts, bellhousing studs, automatic transmission-pan bolts, ring-gear bolts, rear-end-cover bolts, brake-hat bolts, wheel studs, and drive-plate bolts. ARP fasteners have a nominal tensile strength rating of 170,000 or 190,000 psi which makes them stronger than Grade 8 hardware. Each ARP driveline fastener is designed for the specific application. Most driveline fasteners are made from a premium-grade 8740 chromemoly steel that's rated superior to aircraft quality. For more details, contact Automotive Racing Products, Dept. KC, 531 Spectrum Circle, Oxnard, CA 93030; 800/826-3045.

Christian Relief Network's Annual Fund Raiser

WIN THIS 289 FIA!

Drawing Date: Dec. 23, 1999



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1998 427 WINNER: SCOTT MILLER

Scott had never won anything in his life, but bought some tickets to help the charity. Boy, was he surprised when he received the winning phone call!

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(Bradley GT Replica)



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WE ALSO HAVE
BRADLEY GT AND
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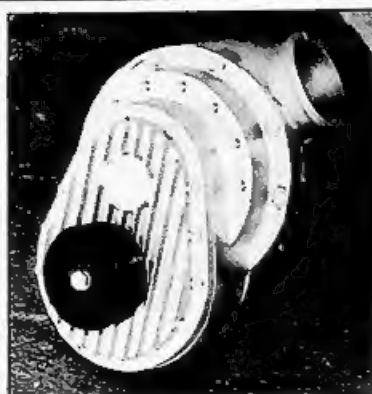
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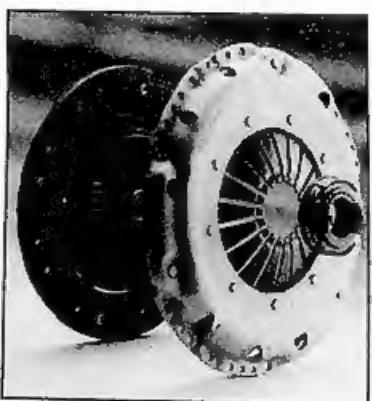
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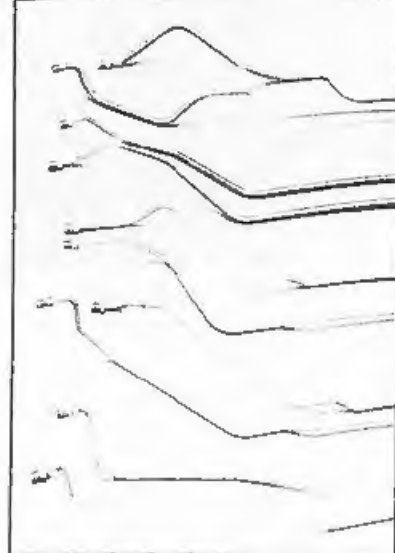
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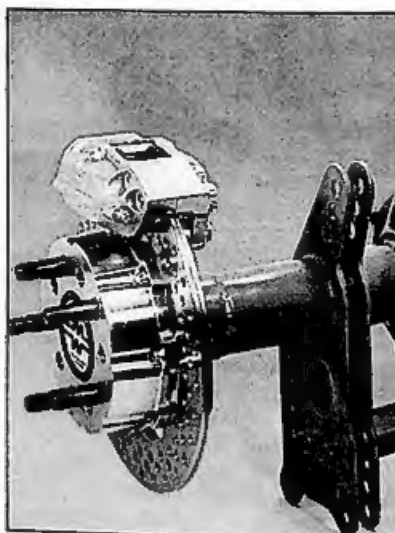
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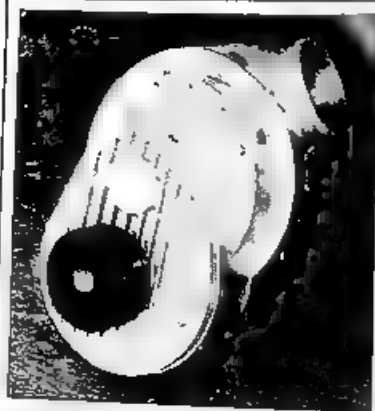
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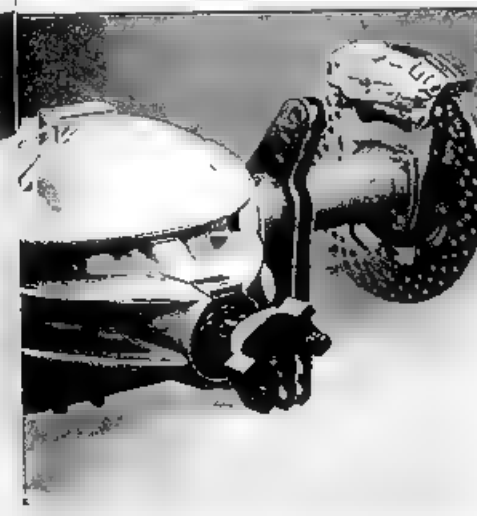
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variety of end tubes is available, ranging from a billet-aluminum four-link kit to a simple leaf-spring mount. The rears benefit from adjusters and O-ringed rear covers, and can be fitted with Posi or locker units. For more details, contact Mark Williams Enterprises, Dept. KC, 765 S. Pierce Ave., Louisville, CO 80027; 800/525-1963.

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ALL IN THE FAMILY

Annual Cobrafest Beckons "Y'all come back now, hear?"

By Dan Burrill

PHOTOGRAPHY: DAN BURRILL

Momma Jean Weaver and her clan have created what some might call the American Dream. A fun, close-knit family business in a small Southern town where the livin' is easy and the catfish fried. In addition to epitomizing Southern hospitality, Unique Motorcars has produced over 900 cars since 1976. Customer satisfaction couldn't be much better and is just one reason why many customers have become repeat buyers. Seven years ago, the now annual Cobrafest was organized as sort of a thank-you celebration for past customers, but it has grown into much more than that.

Jean Weaver and her sons Maurice and Alan are the friendly people who own and manage Unique Motorcars located in Gadsden, Alabama. Jean oversees the front office, and Alan and Maurice handle the activities in the shop. The business started over 20 years ago with Jean and Jim Weaver and their three sons, including Rick, who went back to teaching. Jim retired several years ago.

The shop is located just an hour

north of Birmingham, making it convenient for anyone wanting to stop by for a visit.

"When someone orders a car from us, we view them not as a customer but rather as one of the family," said Jean. "We all really enjoy what we are doing."

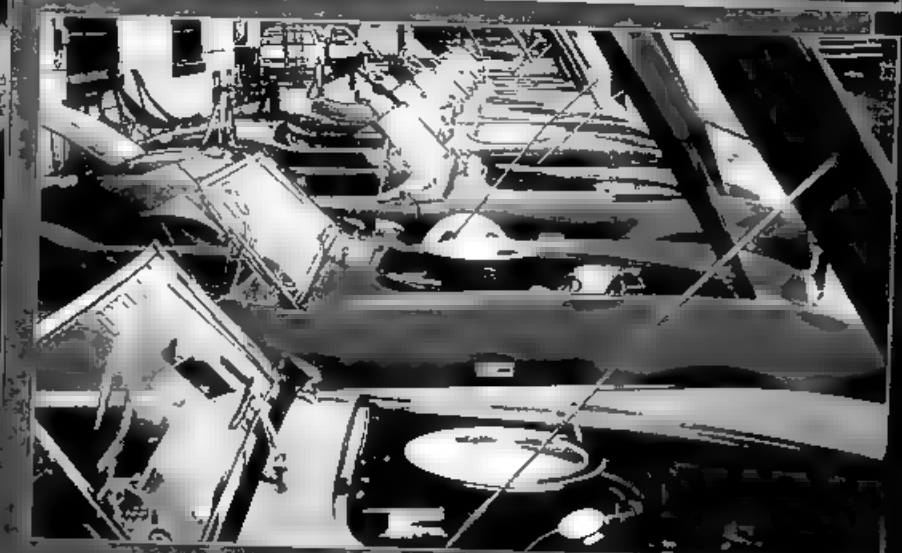
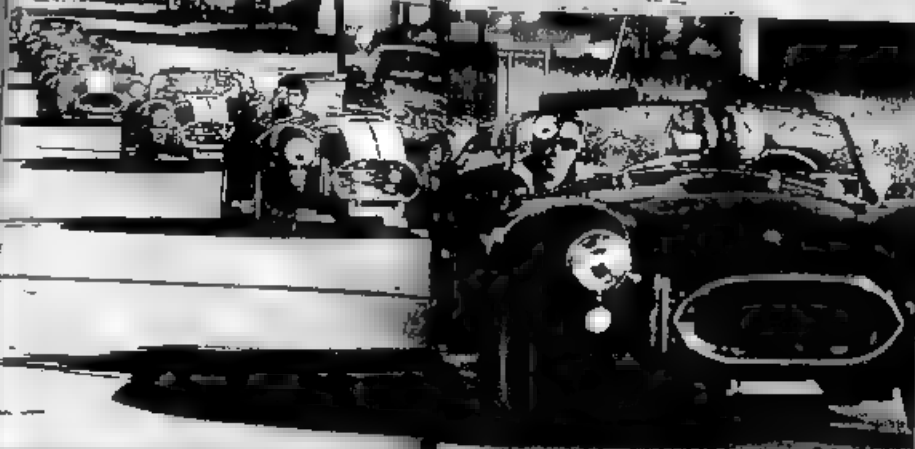
This explains the yearly two-day celebration called Cobrafest, where as many as 80 "family members" make the annual pilgrimage from as far away as New Hampshire, Connecticut, North Carolina, Texas, and Florida. The weather for this year's event was good for a change. Located in the Appalachian foothills in the northeast part of the state, Gadsden offers a gentle rolling landscape ending into an outcropping of mountains, valleys, and streams that empty into the meandering Coosa River. The lifestyle is leisurely, according to the travel folder. That is, except for one weekend out of the year when the city comes alive with the sound of 40 healthy engines coming home for the annual gathering.

People start arriving on Thursday evening when they all meet at the Top O' The River Restaurant for fried catfish and gulf shrimp. New kit projects are announced and bench racing starts after the first iced tea. The two-day event officially starts with an

open house during the day on Friday and dinner in the evening at the city park, complete with door prizes. Saturday begins with a convoy from the plant to the Talladega Grand Prix Raceway, a 1.3-mile road course about an hour's drive southeast of

"We got us a convoy." Just part of the line of snake replicas heading for Talladega Grand Prix Raceway to try to beat the clock.

UNIQUE MOTORCARS



snake replicas heading for Talladega Grand

Gadsden. This year, the weather cooperated nicely and it proved to be a beautiful weekend.

Coming into town, the 25,000-square-foot facility on East Broad Street was easy to find, with a long row of brightly painted cars lined up along the front of the building. The entire shop area featured cars and parts on display and works in progress vehicles and kits being prepared for shipment.

In one corner was the fiberglass shop where hand-laid bodies are created in both 427 SBC and 289 FIA molds. The cars use a custom front end that is fitted to the 2 1/2-inch bed-deck-type frame. Jaguar engines are used in the cars.

In the back of the shop, several of the car owners were making minor changes to their cars in preparation of the Saturday track event. Jim and

was changing the brake parts while I looked the car over. It features a Ford Taurus SHO engine with a Paxton supercharger. Jim has a new "crate motor" fitted up to a one-of-a-kind bellhousing allowing it to run a Ford five-speed transmission.

"I wanted to do something a little different," said Jim. "I was looking for a new application in mind for the engine but, after talking with Alan, we decided to go with a Ford to make the fit."

Stalin's Lincoln came all the way from Moscow. (Edwards, for the record, owned the built his own car and actually kept it in his own shop. "This is my own car," he said. "I built it and I'm proud of it.")



ALL IN THE FAMILY



"How 'bout some more peach cobbler?" Momma Jean Weaver wears plenty of hats at Cobrafest.

track but, unfortunately, the engine went away early in the afternoon.

"The Weavers have been great," said Don, "I really appreciated their help when I was putting the car together."

Last year Sammy Campbell received the award for having the fastest time, and Joe "The Kid" Traut was talking about "this year taking the award home to Massachusetts."

As the open house drew to a close, everyone motored down to the city park, located along the river, for the evening meal and raffle. The Weavers and their extended family served up a generous portion of Southern hospitality, along with some great southern-fried chicken, to a long line of Unique snake charmers.

Later, in the motel parking lot, just as it was getting dark, I watched as Sammy Campbell changed from street to racing tires in anticipation of the next day's activities.

"You're not getting serious about this are you?" I asked.

"The only thing that separates us from the animals is our ability to accessorize," he replied, with a laugh.

Early Saturday morning there was a lot of activity as cars lined up in front of the shop for the 40-mile caravan to the speedway.

While we waited for everyone to show up I visited with Ben Cole from Suwanee, Georgia. "I really like com-

ing here," he said. "It's a great break from my normal business world and a chance to associate with some really great people." Ben is a contractor.

The sun was out early and it was getting warm by the time we completed the hour-long ride to the track.

Safety is always the number-one concern, so the first activity of the day was a driver's meeting and a safety briefing. Then the fun started with everyone becoming familiar with their cars and the track. Several people showed up with some really hot Cobras. Terry Pendleton, former third baseman for the Atlanta Braves, was turning some good track times with his new Cobra. The car features an Ernie Elliot-built hybrid 351 NASCAR block, bored out to 454 ci with a toploader transmission. Around noon, after everyone had a chance to get some time in on the track, Jean Weaver arrived with a load of delicious barbecued pork sandwiches for everyone. The sandwiches went well with the ice-cold pop that was available throughout the day.

During the big-block tuning runs, John DiGuilio got a wheel on the grass, slid about 50 yards, and made contact with the tire wall. The car hit nose first, then spun around and ended up with the right rear resting against the tire wall. DiGuilio was not injured and the car suffered some



Any more trophies and overall fastest winner, Joe Traut, might have to rent a U-Haul to get the gold back to Massachusetts.

broken fiberglass, but was not severely damaged.

"This is a good demonstration of how well our cars are built," said Maurice Weaver. "We will have this car repaired and back on the road in a relatively short time."

By mid-afternoon there was only a fraction of a second separating Sammy and The Kid, and it was anybody's guess as to who would win the top-dog award.

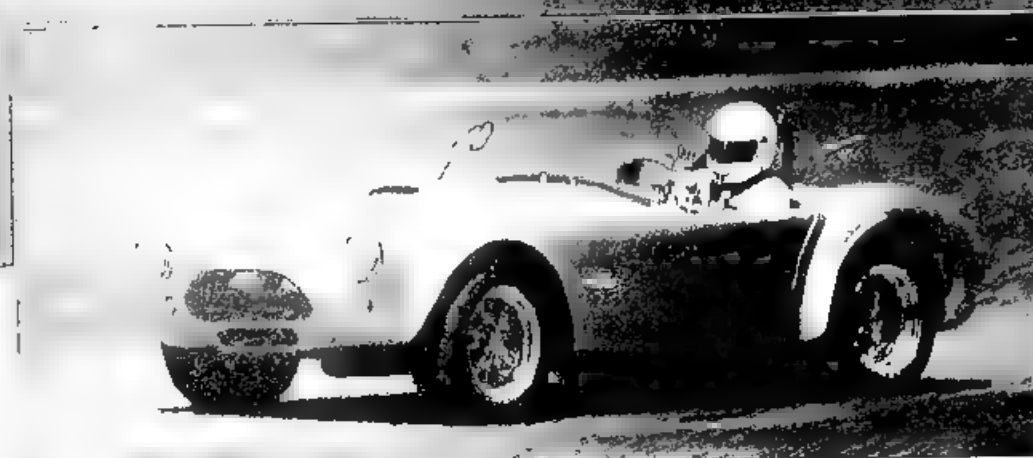
And then it was time to put the toys away, tabulate the scores, and present the awards.

Linda Dunn made a great showing and received the Fastest Female Award. Michele Lincoln took the Fastest Small-Block Award, and Sammy Campbell picked up the Fastest Big-Block Award.

And the big story of the day was Joe Traut, who managed to smoke his red 351 around the track just a fraction of a second faster than Sammy Campbell to wind up with the gold. Joe received three awards: Longest Tow, Fastest Medium-Block, and Overall Fastest Time.

"Sammy is a great driver and he is quick," said Joe. "I almost didn't catch him...but it made for a great day!"

It has become somewhat of a Cobrafest tradition that folks not planning to head home right after the event are invited to a "family" dinner



Jim and Angie Brownlee's novel quick snake is powered by a Paxton-supercharged Taurus SHO engine.



Linda Dunn, fastest female snake driver, gets her award from Maurice Weaver.

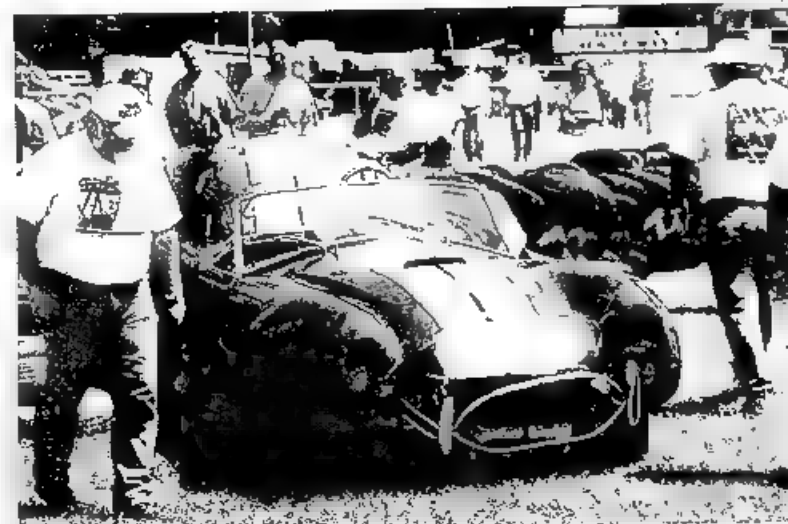
at a local restaurant. It was an offer we couldn't refuse.

In summing up Unique's success, Maurice Weaver said, "Our business is all in the family. Our cousin Terry Harbin does the fiberglass work for us. My brother Rick is a teacher, but he has a small screen-printing business on the side, so we use him to do our shirts. We only have nine employees. Turnover at our shop is low. Our newest employee has been with us since 1994. And our customers can't be beat."

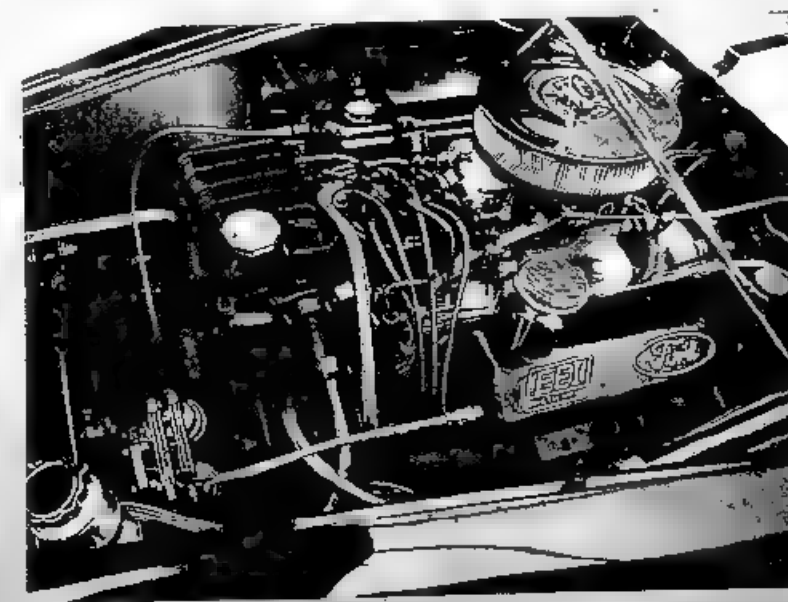
The company's basic kit sells for \$8,995, and the deluxe pallet car goes out the door for \$21,305. With a pallet car, all that remains to be done is install the engine, transmission, wheels and tires, and have the car painted.

Good ol' Southern hospitality and a willingness to go the extra mile has certainly paid off for the Weavers and their customers. Cobrafest is just one reason to own a Unique replica.

For more information, contact Unique Motorcars, Dept. KC, 230 E. Broad St., Gadsden, Alabama 35903; 256/546-3708.



John DiGuilio was not injured when his car hit the wall after getting a wheel off the track. The car hit nose first, then spun around and ended up with the right rear resting against the tire barricade. The damage was pretty much limited to fiberglass crunching.



KC This Ernie Elliot-built 351 found a home in Hugh Smith's blue Unique.

Brake Systems

Shedding Some Light on the All-Important Stopping Power

By Robert Eckhardt



Adding aftermarket brake components to your kit car can improve braking performance and add an element of safety to your high performance driving.

Kit car builders have a unique opportunity to do something that millions of people around the world only wish they could do, and that is to build their own high-performance automobile. Along with that opportunity comes the responsibility to build a car that's as safe as possible. One of the areas of safety that sometimes is overlooked is the braking system.

Because most kits are built with donor-car components, it's understandable that the kit car builder would think that the original-equipment brakes would be adequate for stopping his car. After all, brakes that were designed to stop a heavy production car should be able to stop a light-

weight vehicle built on a similar chassis. This would be true if it weren't for the fact that most kit cars also typically have more horsepower and go faster than was originally designed for that chassis. Therefore, the stock brake system may need upgrading.

To understand the braking system and its components, you must understand that a high-performance car is fast-moving kinetic energy. To stop the vehicle, you must convert that energy into heat energy. That happens by creating friction between the brake pad and the rotor. The more heat the pad can generate, the quicker the car will stop. If the brake system builds excessive amounts of heat, there may be component failure

or boiling of the brake fluid. In either case, the resulting stopping power is less than optimal and unsafe.

Along with thinking that the original-equipment braking system is adequate for the job, the kit builder must remember that the lowest bidder supplied most parts used on factory street cars. While most brakes are sufficient to stop a car, they are far from the best they can be.

In order to maximize the stopping power of the vehicle, the kit builder must install disc brakes on all four wheels. The key to better stopping power is optimizing each component of the brake system. The brake components that need improving are the caliper, rotor, brake pad, master

cylinders, brake pedal, brake fluid, and mounting hardware.

Most of the problems with OE brake systems stem from the fact that the rotors are distorting with use. Factory cars come with cheap offshore rotors. There is little integrity to the iron and they're poorly designed. A byproduct of this distortion is noise and poor braking performance.

Instead of fixing the rotors, the OE manufacturers are using low-density pads to help absorb some of the harmonics produced by the distorting rotor. We now have brake pads that wear out more quickly, are not very effective, and produce a lot of brake dust. This is a big problem on front-wheel-drive cars because the front wheels do 90 percent of the braking. Not only do the brakes have to stop the car, but they also have to stop the motor and the gearbox.

Derrick Dong at Performance Friction Corporation is an expert in the friction material field. He says, "The OE manufacturers have reduced the density of the materials used in brake pads. They are making softer pads that are not very efficient. The duration or application time of the pad is longer, and higher pressures have to be used because of the pad's lower effectiveness."

"If you make the disc more compatible, with little or no distortion, you can make the pad more robust. It would have more bite, more friction, which would require less pressure and less effort. The time the pad is applied to the disc would be reduced."

ROTOR

Performance cars should use brake rotors made from iron because iron operates over an impressive temperature range. The rotor has to run as cool as possible and yet sustain incredible amounts of heat. As the rotor generates more heat, it needs to be thicker for two reasons. First, a thicker rotor dissipates more heat and does it quicker. Second, a thicker rotor will resist deflection. Vented iron rotors are best for removing heat from the rotor. The kit builder should use the biggest rotor that will fit inside the wheel. The bigger rotor has more surface area to dissipate the heat. Another benefit of larger rotors is the increased mechanical leverage available to stop the car.

Surface area is the key to heat removal with the rotor. To increase the surface area, manufacturers have developed curved-vane rotors. Because curved vanes are longer than straight vanes used in some rotors, the longer vanes increase the surface

area of the rotor. This allows for more heat removal. If a rotor gets too hot, it radiates heat back into the caliper and boils the fluid.

Todd Gartshore at Baer Racing explained that "the vented rotor works like a centrifugal supercharger. It pumps air from the inside out. This provides cooling for the caliper as well as the rotor. When you run out of brakes, it is because you didn't have enough rotor mass to absorb the heat."

"Rotors grow at a dissimilar rate. The inside and the outside of the rotor operate at as much as 100 degrees difference between the two. A vented rotor allows the expansion to occur without causing as much warpage as with a solid rotor."

As we have said, rotor warpage reduces brake efficiency. Other components can reduce braking effectiveness. The builder needs to examine the caliper, its mounting bracket, how it mounts to the spindle, and the quality of the brake lines.

The caliper mounting bracket should be at least 1/2 inch thick or thicker. If it's much smaller than that, there will be deflection problems as the brakes are applied. The caliper squeezes the pad against the rotor causing the heat energy. If the caliper moves because its bracket is flexing, much of the clamping force is lost.

THE CALIPER

A caliper must be rigid and not flex when applying the brakes. The debate over which is better—cast or billet-aluminum calipers—really comes down to aesthetics. Both styles being manufactured by today's leading brake companies are far superior to stock OE calipers. The proper sizing of the caliper is more important to the kit builder. You need a caliper that has enough clamping force for your application.

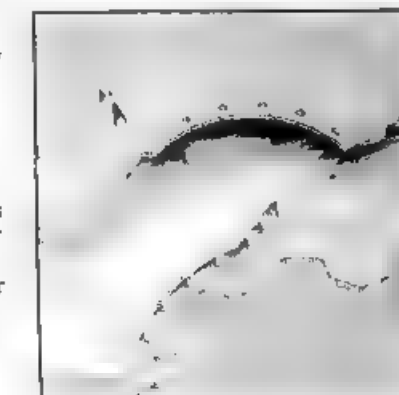
The job of the caliper is to convert the brake-pedal pressure into the clamping force of the brake pad against the rotor. Doug Burke of Wilwood Engineering explained more about the caliper. "A caliper's clamping force is determined by a couple of things. First is the rigidity of the caliper. If you have a flexible caliper, the effort that is going into the pedal and down the line as pressure is not all being used to squeeze the rotor. Part of the effort is going into expanding the caliper."

"Second, the clamping force is determined by the piston area in the caliper. The clamping power will be proportionate to the piston area. Piston area is measured by taking the diameter of the pistons on one side of

the caliper. For instance, when you take the area of two 1 1/2-inch pistons versus two 1 1/4-inch pistons, there is 50 percent more clamping force with the bigger pistons.



A larger rotor improves braking by adding more leverage to stop the wheel. The larger rotor also has more surface area to dissipate heat generated by more efficient braking.



The longer curved vanes of a curved-vane rotor offer more area for heat dissipation compared to a straight-vaned rotor. In either case, a vane rotor removes more heat than a solid rotor. A vented rotor is also less likely to warp which causes uneven braking.



Buy the largest rotor that will fit inside your wheel. A 13-inch rotor with the caliper and mounting bracket will not fit inside a 15-inch wheel. Check with the brake manufacturer before purchasing your new brake components. A rotor that fits too close to the wheel will radiate heat into the wheel and tire.



Photo: Rick Bickel



Photo: Rick Bickel



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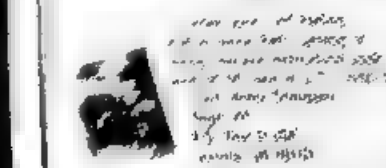
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HOT & FAST KITS! Lemon Tues

When Life Gives You Lemons, Make Lemonade, or at Least a Yellow Countach

By Joe Greeves

PHOTOGRAPHY JOE GREEVES

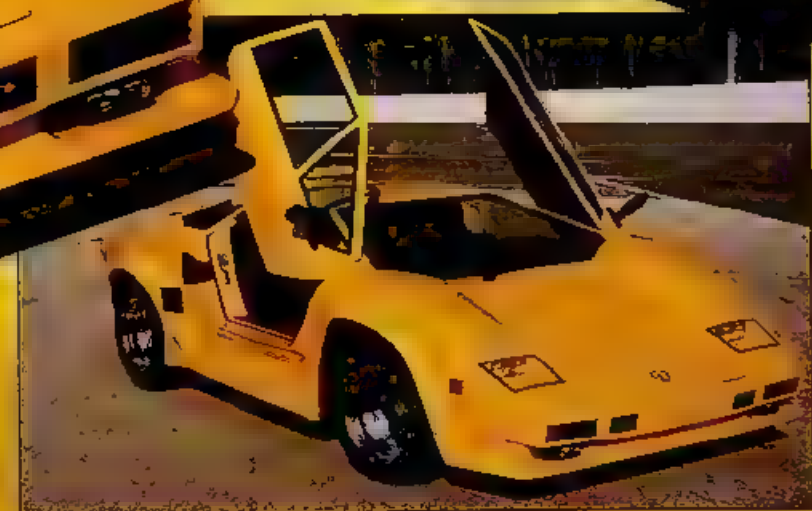


After a bad experience with his first kit car, Mike Heck came away with strong feelings about the kit car business. It started when he bought a Lamborghini kit from a Florida manufacturer who assured him the car could be completed for about \$11,000. Before the poorly engineered car was done, however, Mike had \$24,000 invested in it, along with an idea for a new venture. Mike sold that car but, as a result of the encounter, Final Concept, in Punta Gorda, Florida, was born. As you can guess, up-front pricing and solid engineering became an essential part of this family-run company.

Innovation was equally important. Mike wanted his version of the classic Countach to be functional and safe, as well as stylish. They begin each kit with a complete overhaul of the Fiero donor car, bringing suspension and brakes back to factory new specs. Customers can choose a stock V-6, standard and supercharged versions of the 3.8, or a complete Northstar powertrain. Final Concept rain-side impact protection to ensure it can handle the power Internal front and rear bumpers, cowl support, and integral rollbar ensure rigidity. When they were designing new molds, they paid particular attention to interior comfort. The roof on the one-piece hard-laid body is raised slightly and the floor is lowered, giving drivers and passengers a 3-inch increase in headroom. They enlarged the rear window and added taller wing supports, raising it above the line of sight for a clearer view to the rear. Hip

room was increased 9 inches over stock by adjusting the side rails. Supportive bucket seats are constructed in-house to capitalize on the chassis and body improvements. The grand touring theme is enhanced with an air-conditioned and heated custom leather interior, map pockets behind the seats, Dakota Digital dash with a choice of read-out colors, AM/FM/cassette stereo (Blaupunkt or comparable), Grant GT steering wheel, and Dakota Digital remote keyless entry.

Outside, the functional changes continue. The rear hood panel holding the wing is hinged at the back rather than the front, simply because it works better. It's easier to open since the weight of the wing counterbalances the panel. With the rear hatch open, you can actually sit inside the rear luggage compartment and work on the engine. The Fiero gas filler, in its stock location, was incorporated into the new design. Other versions, where the gas cap is hidden in the side vent, may look more like the original, but they are terribly slow to fill. The trademark Lambo "sky-high" doors rise silently on machined hinges at the touch of a pocket remote. With typical thoroughness, Mike added electrical door-release pushbuttons and a mechanical override inside, along with a hidden mechanical release outside, in the event of power failure. The articulated windshield wiper effectively sweeps the



HOT & FAST KITS! Lemon Twist



After a bad experience with his first kit car, Mike Heck came away with strong feelings about the kit car business. It started when he bought a Lamborghini kit from a Florida manufacturer who assured him the car could be completed for about \$11,000. Before the poorly engineered car was done, however, Mike had \$24,000 invested in it along with an idea for a new venture. Mike sold that car but, as a result of the encounter, Final Concept, in Punta Gorda, Florida, was born. As you can guess, up-front pricing and solid engineering became an essential part of this family-run company.

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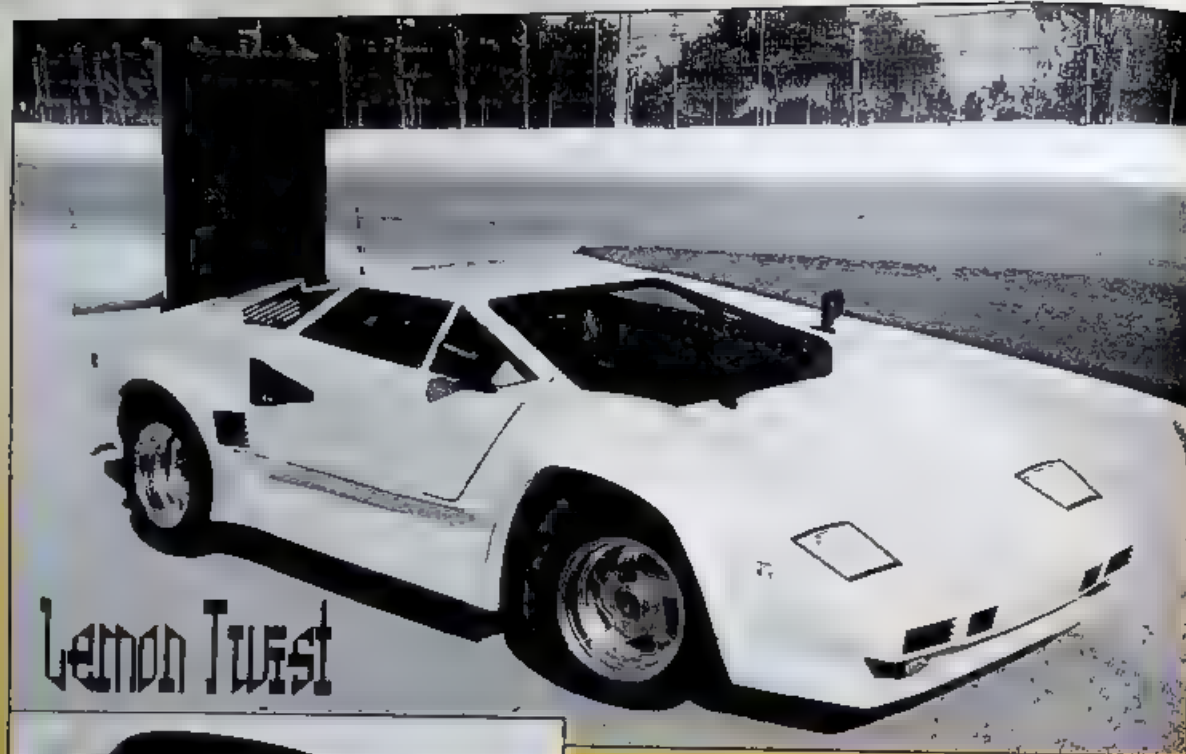
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When Life Gives You Lemons, Make Lemonade, or at Least a Yellow Countach

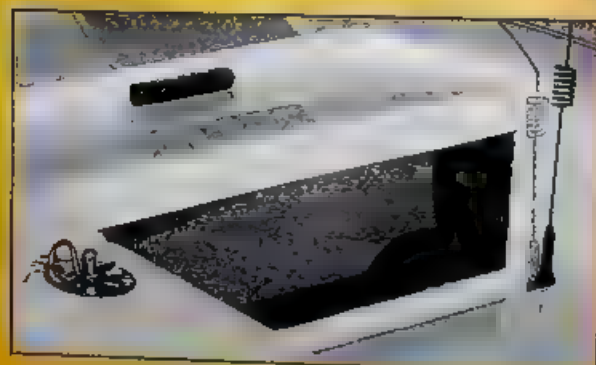
By Joe Greeves

PHOTOGRAPHY: JOE GREEVES





Lemon Twist



flat Lambo windshield. Ultra wheels, specially designed for the car, bolt directly to the Fiero hubs with no adapters. If you insist, Countach-style, Compomotive's can be purchased as an extra-cost option. Fenderwells are rolled and the car is as smooth underneath as it is on top. It's a top-notch product at a bargain price—\$30,000. Financing and specialty insurance is available. If you are a do-it-yourselfer, kits are available in several different stages.

Final Concept has been in business since 1993, with a staff of about 20 producing two cars a month. They expect that figure to increase to six per month now that they are in their new, larger facility. Want to see the factory first? There's a \$200 airfare allowance for one, credited toward the purchase of your vehicle.

Although you wouldn't believe it from his list of accomplishments, Mike was afflicted with a form of muscular dystrophy at age 19. Now 37, he has been confined to a wheelchair for the past four years. Mike donates a portion of the profit from the company to FACT (Find A Cure Today) Foundation. With a little luck and continued research, thousands of people can benefit from advances in medical research. It's cool that kit cars can help with that support.

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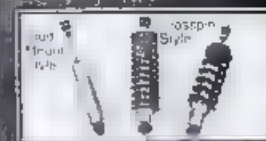
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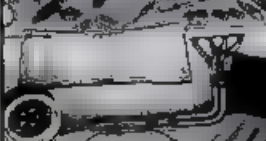
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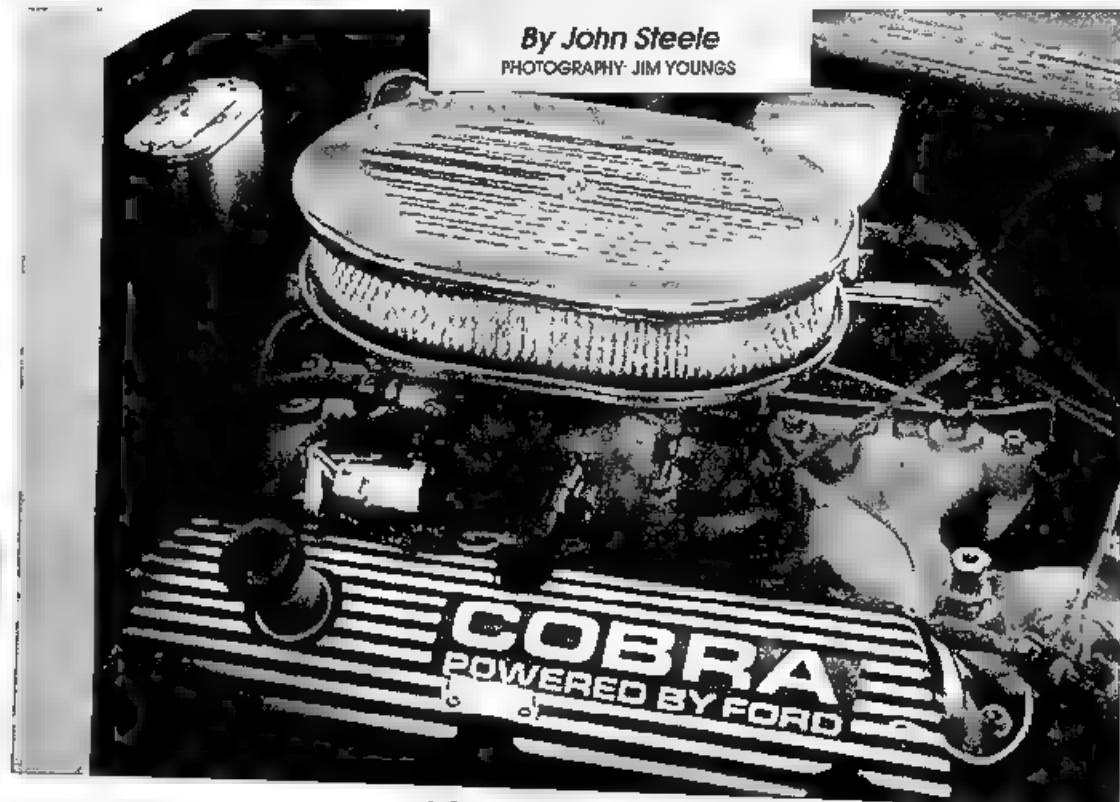
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Install Holley EFI

We Bolt on a Pro-Jection 4Di Fuel Injection System and an Annihilator Ignition For a High-Tech Approach to Performance

By John Steele

PHOTOGRAPHY: JIM YOUNGS



Electronic fuel injection has replaced carburetors completely for production-car induction. The associated computers that control modern vehicles with such precision and efficiency help engines last longer, run better, and make them more fuel-efficient and more reliable. Our idea was to update an old-tech 289 Cobra FIA replica with a high-tech approach to induction and ignition, and show you how the conversion process was accomplished. Though we chose to do the project on a small-block Ford engine in a Cobra clone, Holley offers these products for the most popular engines around.

Holley has several versions of its Pro-Jection EFI systems with one-, two- and four-barrel throttle bodies. We chose the top-of-the-line Pro-Jection 4Di four-barrel kit, a digital

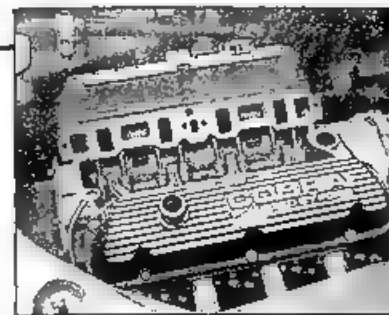
1 Our starting point for the EFI install is a Ford 5.0 crate engine with cast-iron GT40-style heads, roller rockers, and roller cam. This shot shows the finished install, complete with a Holley billet air filter. It's hardly discernible from the stock carbureted setup.

interactive system that allows user choices such as fuel-curve modifications to fit specific performance requirements. The system's ECU (electronic control unit) is programmable from a laptop PC using Holley's user-friendly software. The provided software has a selection of five fuel maps to choose from, and up to 256 fuel map points that can be changed. The Holley Di system relies on inputs from manifold pressure (vacuum), throttle position, engine and air temperature, exhaust gas oxygen, and engine rpm to optimize operation.

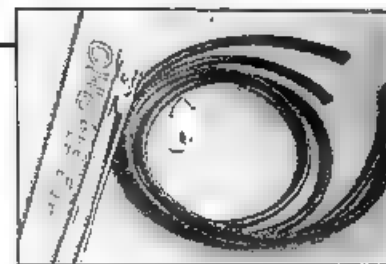
While we were updating the engine with EFI, we also decided to improve on the stock Ford Duraspark

ignition by installing a Holley HP Annihilator CD ignition system, Lasershot Street coil, plus a billet distributor and a set of 8mm Spiral Wound plug wires. The heart of the Annihilator system is the micro-processor-controlled black box which provides capacitive discharge, multi-spark ignition, plus a built-in, adjustable rev limiter.

Since these systems are electronic devices, about the most difficult part of the installation is locating where the components can be mounted and running lots of wires to them, to the sensors, and to the throttle body. We opted to mount the EFI computer to the transmission tunnel in the passenger footwell, then route the wires



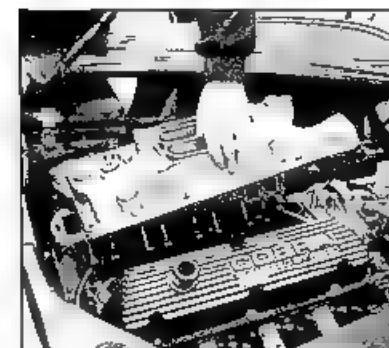
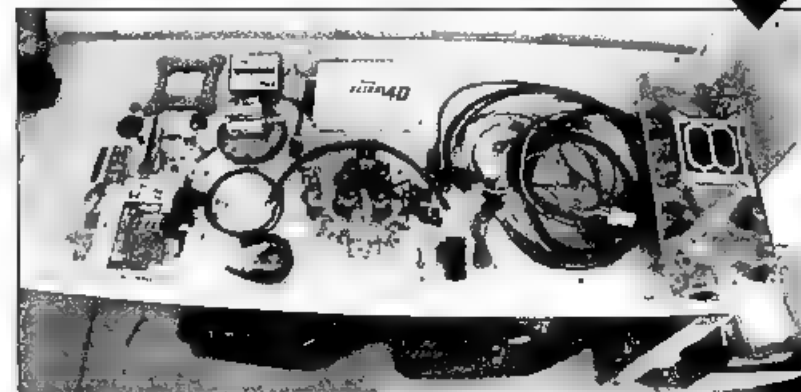
2 Here we've removed the carb and intake manifold, the distributor, and the points ignition system in preparation for updating the engine with a high-tech EFI and electronic ignition.



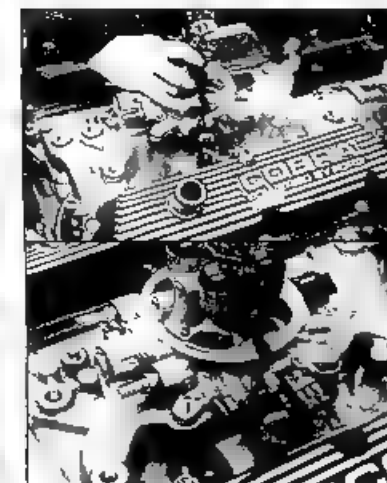
3 Holley provides everything you'll need for installation. Since we were replacing a carb and intake, we also needed some gaskets and tubing to serve as a return fuel line. Be sure to specify FI-rated rubber fuel line to handle the higher pressure requirements.



6 Holley recommends using its electric fuel pump which is rated at 410 pph at 15 psi. Mount the pump as close to the tank as possible and install a good full-flow fuel filter in line between the pump and the tank. We installed a filter on the return line as well.



4 Installation of the Holley intake manifold is no different from any manifold replacement. If we had had the good sense to use a Holley manifold originally, these steps wouldn't have been required.



7 Once the manifold is in place, it's time to add the throttle-body studs, add the spacer to prevent heat buildup, and then bolt the unit to the manifold, much as a carburetor is mounted.



8 The fuel hookup is made at the back of the throttle body. Prior to this point, we routed the return line from the gas tank to the engine.

through the firewall on that side. The rest of the bigger components, such as the coil and ignition box, were attached to available surfaces in the engine compartment.

While the focus of this story is the installation aspects of both fuel and ignition systems, we will follow up with a story at a later date on how to program the EFI using a laptop, and report on the results of programming changes.

5 It's a good idea to do a little thinking and positioning of the system's ECU before attaching it securely. We chose the tranny tunnel on the passenger-side footwell from where routing the wires through the firewall seemed proper. This JPS Motorsports Cobra 289 FIA car has a removable dashboard which facilitated the work in this small space.

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9 Don't panic with the sight of all the wires from the ECU. All of the wires are color-coded and identified, and will only plug into matching plugs on the engine. After feeding the wires through the firewall, we organized the wires into groups and then began matching up plugs to the various gear and sensors.

10 We installed the provided temperature sending unit, MAP (manifold air pressure) sensor, and MAP relays. The MAP is attached to a full vacuum port on the manifold, or there is one on the linkage side of the throttle body flange. Then continue to connect the rest of the plug-ins.

11 This car runs headers and side pipes, so we had to weld in a bung on the pipes for the addition of an exhaust oxygen sensor which also plugs into the computer harness.

12 Holley provides several types of connectors so that you can use an existent throttle cable

13 The Annihilator CD Ignition mounts up on the right fenderwell and plugs into the Pro-Projection main wiring harness. We mounted the Lasershot Street Coil to the left fenderwell. It also plugs into the EFI ECU harness.

14 The new Holley billet electronic distributor. We removed the stock unit and dropped in the new one, replaced the cap, and routed the new Holley silicone plug wires through Ford SVO Motorsport wiring looms.

15 The crowning step was adding the Holley air filter. Note the spacer which helps the air cleaner clear the injectors.

SOURCES

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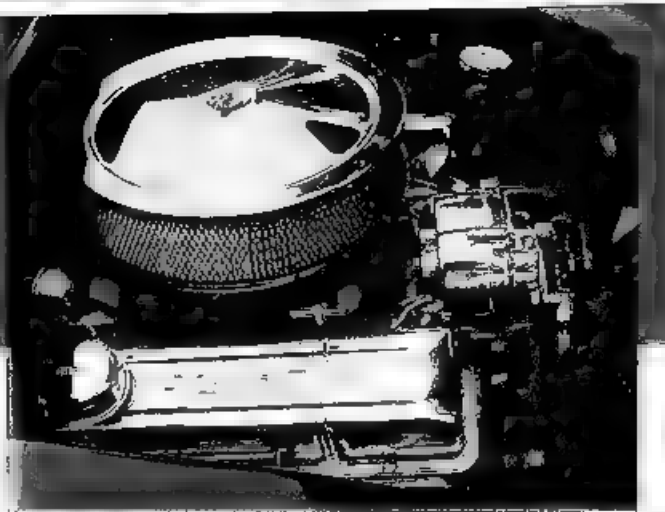
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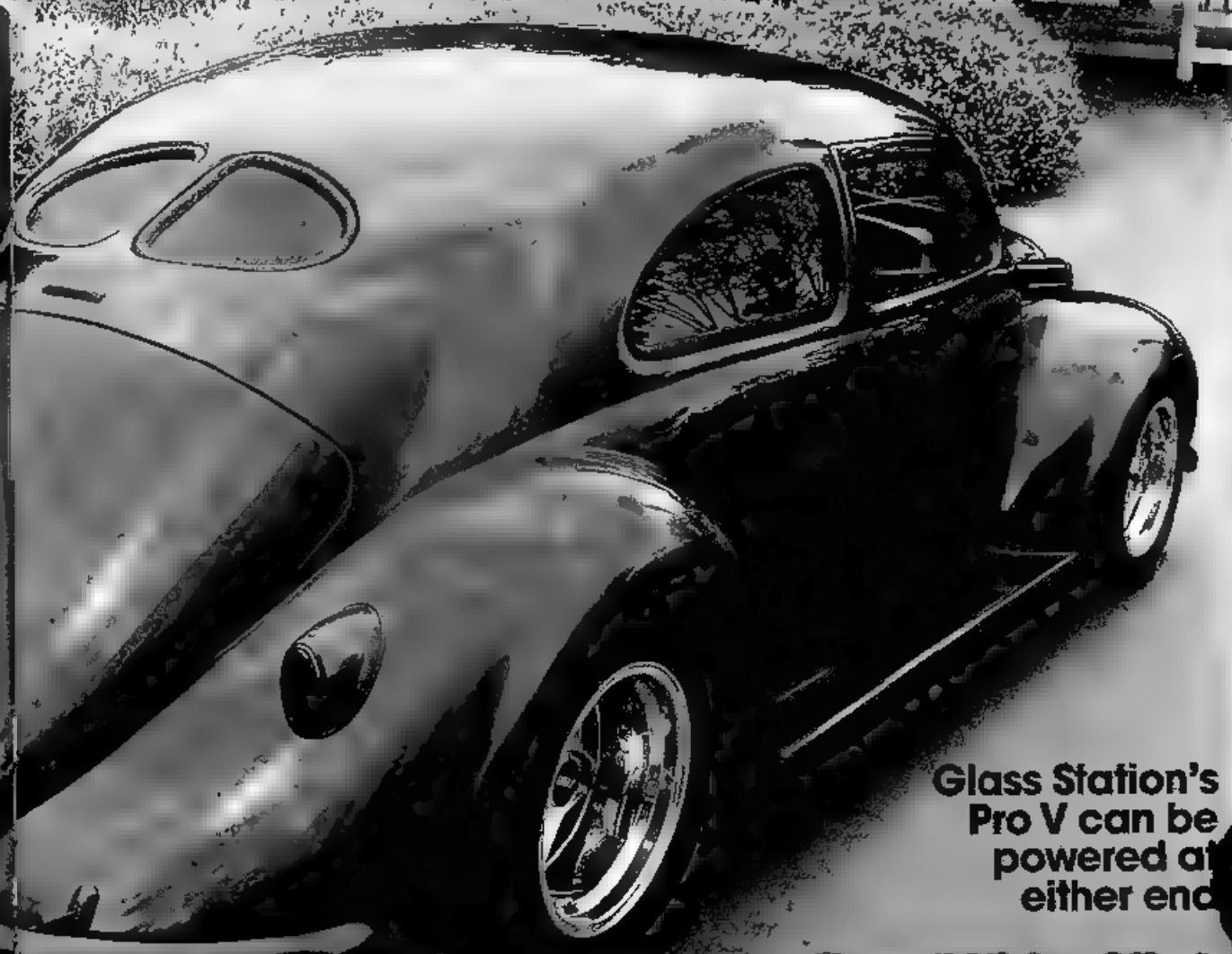
may look like a Volkswagen, but this particular Beetle has very few parts made in the land of Lowenbrau and bratwurst. The engine is a Chevy small-block, the front suspension is a FoMoCo, and even the body and chassis are made right here in the USA. This radical custom Beetle is not exactly a sleeper, with huge rear tires, a chopped roof, and full rollcage that give it more of an AAGas-coupe look than an economical grocery getter. If you're mentally computing the astronomical price of building such a radical ride from scratch, you can relax. It's a kit, and you can build it mild or wild!

The Pro V8 has been a labor of love for Bob and Priscilla Eyer, owners of The Glass Station in Lemon Grove, California. They are hard-core car people, having owned a number of hot rods and kit cars, as well as a pair of '59 Corvettes. They liked the Corvettes OK, but they didn't attract enough attention, so the VW V8 concept was born. They started with a '67 VW, but were flabbergasted when they found that local rod shops wanted around

\$5,000 just to chop the top. They decided to do it themselves and then make molds to duplicate their efforts in fiberglass.

They acquired two more VW bodies and started cutting and splicing. They chopped the top, removed the drip rails, widened the fenders, and milled them into the body. An early split rear window was added and longer bumpers were made to cover the widened fenders. The doors were reversed for "suicide" operation and the front fenders were designed for the early style "bubble" VW headlights. Once the

3VEJL498



Glass Station's Pro V can be powered at either end.

BIG-BORE BEETLE

By Harold Pace

PHOTOGRAPHY: HAROLD PACE



HOT & FAST KITS!

metalwork was finished, they spent five years making the fiberglass molds so they could sell replicas.

The Glass Station sells two versions. The Pro V is designed for VW power, and will fit their own custom steel tube frame or a stock VW pan. The body kit comes with an eight-point rollcage that bolts to either frame and an installed full body inner floor liner with provision for gas tank and spare tire. The basic body package sells for \$5,995, and could be just the thing for punts who prefer Wolfsburg power to Detroit iron. The split rear windows are plexiglass, while the front and side windows are pre-cut glass.

The Pro V frame is made from 1 1/4-inch tubular steel and has a fiberglass pan with foam core reinforcement. A

three-piece aluminum tunnel-pan cover is included. All holes are pre-drilled and hardware is included. The VW torsion-bar rear suspension has been replaced with adjustable coilover shock absorbers and rod ends. Brake lines and mountings for the emergency brake cables, clutch cable, and fuel lines are pre-installed. The Pro V chassis sells for \$1,845.

BIG-BORE BUG

The second version of this radical Bugectomy uses a similar body, but with an optional front grille. The chassis is very different, with 2x3-inch steel tubing and Ford Mustang II front suspension. An eight-point rollcage is optional.

BIG-BORE BEETLE



The rear suspension is sourced from Chris Alston and uses a Ford rear axle with adjustable coilovers and traction bars. Steering is provided by a Pontiac Firebird power rack with a tilt column. Brakes are 11-inch Ford discs up front with drums out back, but buyers can substitute anything they wish. These chassis are supplied fully assembled and ready to go for \$4,295, or in bare form for \$1,625. More adept assemblers with welding experience can buy a precut kit of tubes for \$969, or a set of blueprints for scratch building for a mere \$125.

This particular Pro V8 is the Eylers' personal pride and joy, and runs a '68 327ci Chevy with a Crower hydraulic cam breathing through an aluminum high-rise intake and a Carter AFB carb. The heads have been converted to use unleaded fuel, and block-hugger headers make for a slim fit. The Eylers built the engine themselves, including balancing and porting the heads. A recently installed geardrive gives it a "blower drive" whine that Priscilla particularly likes. Chrome Exson valve covers, air cleaner, pulleys, and alternator dress up the engine compartment. An '81 Chevy Turbo-Hydro 350 auto tranny is beefed up with a 2,000-rpm stall speed converter.

Wheels are Eagle rims with 6x14-inch up front and 10x15-inch out back shod with BF Goodrich Radial T/A's, P195/60R14 front and 50H/15 rear. A 12-gallon fuel cell rests between the rear frame rails.

The bodies are made with a combination of hand lay-up and chopper gun construction. The main body is sprayed with the chopper, while the interior pieces and bumpers are hand laid with polyester resin. The body is laid up with a sandable gelcoat finish which is sanded and primed before shipment. For their own ride they decided on PPG Rev-Illusion 3-stage paint in Cranberry and Tangerine, purchased from Tri-City Paints in Santee, California. This is one of the new breed of paints that changes color as you walk around it. It starts with a coat of black toner base, followed by three coats of color, and four to five coats of clear which were applied by Chico at



Candy's Auto Body in Chula Vista, California. For a final touch purple and red pinstripes were added on each side, along with Pro V8 lettering.

The interior came in for its share of attention as well. It was painted in Ford purple to complement the outside, and fully adjustable bucket seats from Summit and all-digital instruments from Cyberdyne were installed. Painless Wiring provided a harness, and the Eylers added electric windows and remote-control electric openers for the doors. The tilt column and wheel are from an '89 Firebird. The interior was then upholstered in purple vinyl and fabric, and purple carpet and headliner completed the color-coordinated scheme. About the only luxury missing is air conditioning, and they plan to add that soon.

Glass Station sells the Pro V and Pro V8 in kit form only. A Pro V8 body kit starts at \$6,250 and a body/chassis package runs from \$7,094 to \$10,345, depending on options. There is plenty of scope for the buyer to put his individual stamp on this kit and still not break the bank.

WHAT PRICE FAME?

So, has the Eylers' Pro V8 attracted the attention that their Corvettes didn't? "When we go out to eat in the V8, it never fails to draw a crowd," says Bob. "We have to make sure we don't have too much planned for the rest of the night as we end up talking to people for what seems like hours, but we enjoy it." He says people have followed them for miles just to get a chance to see it and talk to them, and they've had people take pictures of it from their cars as they are driving down the highway. Now that they've got respect on the street, they plan on giving it free reign at the strip sometime soon. Sounds like VW plus V8 is a recipe that cooks!

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SOURCE

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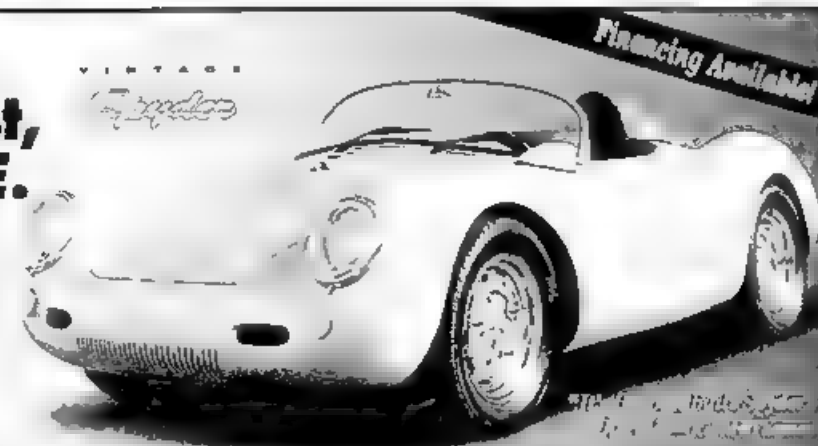
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50 PERFORMANCE TIPS AND TRICKS

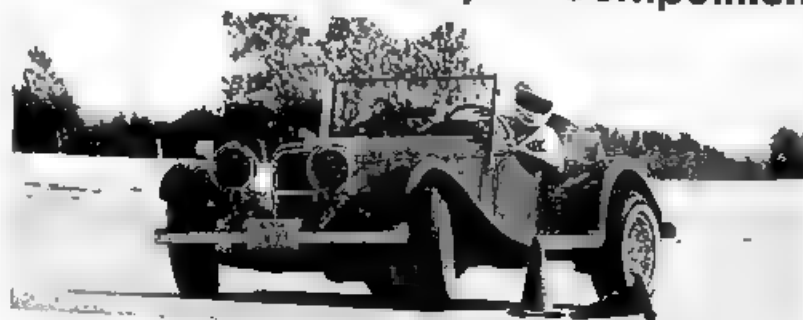
How to Get Your Car Ready for Competition

By Harold Pace

PHOTOGRAPHY: HAROLD PACE & JIM YOUNGS

When kit car owners are asked what they want to do with their completed cars, racing comes up high on the list. Not professional-level, paint-swappin' metal-grindin' blood sport, but some sort of amateur-level events to get a feel for what their cars can do when unchained under controlled conditions. Street racing is, after all, both dangerous to others and illegal. And nailing some kid in a tired 5.0 in downtown anywhere does not match the feel of squaring off at a real honest-to-Garlits dragstrip or an autocross course with some serious competition. Let's take a look at some of the types of competition events open to kit cars, and some tips for getting your car ready for them.

40 KIT CAR



AUTOCROSS RACING

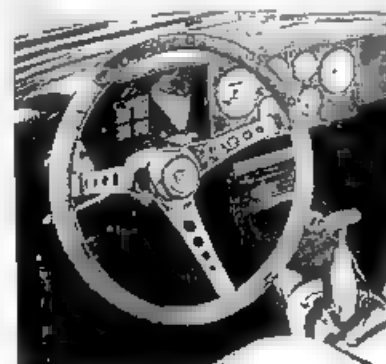
This type of single-car competition involves threading your way through a course laid out with plastic pylons. Speeds are generally kept below 70 mph, and handling and driver precision are rewarded more than brute power. These events are sometimes put on by local autocross clubs or as a part of a larger car club event. Most are put on by the Sports Car Club of America (303/694-7222), which calls them Solo events. Solo I events take

place on race tracks and require serious safety equipment as well as a competition license. Solo II events are low-speed competitions requiring only a driver's license. Kit cars generally compete against other home-built racers. Here are some autocross tips.

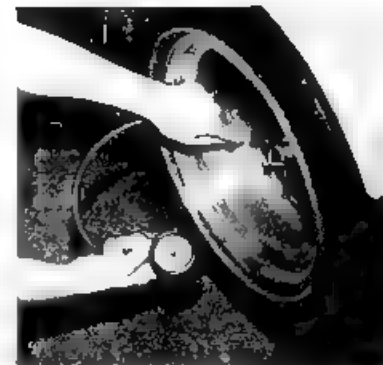
If you intend to do serious autocrossing, first check with the SCCA or your local club to see what the rules are. You may want to build your car for a specific class rather

than having to go back and modify it later. Kit cars usually compete in the Modified classes, where you will be required to have catch tanks for your engine and gearbox. All cars taking part in SCCA Solo events must have mufflers. Ask about rollbars. Don't assume anything—get the regulations first.

Before you go out for your first run, look to see if there are any controls that you could hit accidentally with your hands when executing the sudden turns required during Solo events. For instance, some competitors take the fuse out of their turn signals so they can't turn them on accidentally by hitting the lever. This could cause loss of concentration. Others deactivate the horn and remove the windshield-wiper blades for the same reason.



If your kit car has a wood-rimmed wheel, consider covering it with a lace-on leather wheel or replacing it with a smaller-diameter padded wheel. It's hard to grip a wood wheel when threading a slalom. If you have a quick-removable wheel (adapters are sold by race-car parts suppliers), you could keep your beautiful wood wheel for street use, yet quickly replace it with a smaller version for autocrossing. A smaller-diameter wheel will also make steering faster, which is good for switchbacks and slaloms.



Pump up your tire pressures. Talk to other competitors or the tech people at your tire manufacturer, but generally you will want at least 25 pounds of air per tire in cars that weigh under 3,000 pounds, and 35 pounds in those over 3,000 pounds. If in doubt, set them at the tire manufacturer's maximum recommended pressure. Get a good racing-type tire gauge and a small air can or portable compressor for adjustments at the track.

If your car has a carburetor, consider setting the floats a little higher than stock to prevent them from running dry in a corner. You may also need an electric fuel pump. Center-hung floats (available from Holley) are best. Side-hung floats can run dry in sweepers.



Set adjustable shock absorbers in the middle of their range before your first event. After you have a feel for what the car is doing, adjust them tighter or looser to optimize the handling.



Bring your own helmet. Solo regulations may vary with the club, but most require a helmet and possibly a long-sleeved shirt. Some have loaner helmets, but don't count on it. Besides, you want a helmet that fits and won't be sliding around on your head in every turn. Get the latest Snell Foundation model (currently SA-95) and make sure the Snell sticker is still inside the helmet, as you may be required to show it at tech inspection. The SA means it is approved for automobiles. Motorcycle helmets do not have flameproof linings and are usually not allowed.

For your first event, don't count on doing any performance development. You'll have your hands full just remembering where the course goes and trying to be smooth. You must be consistent with your times before you can judge the effectiveness of any changes you make.

Never make more than one change at a time. If you stiffen up your shocks, increase your tire pressure, and readjust your sway bars, you may be making two steps forward and one step backward. Evaluate only one change at a time.



Do not install racing brake pads for autocross racing. You want the softest street pads you can get. Because the short period of time a normal autocross run lasts (less than two or three minutes), racing pads will not have a chance to heat up to their operating range. You need brakes that work great the first time you nail them from cold.

50 PERFORMANCE TIPS AND TRICKS

11 If you plan on making autocross racing an important part of your kit car enjoyment, consider replacing the rubber bushings in your steering and suspension parts with nylon or similar components. These will make your steering and handling more direct at the expense of a rougher ride on the street. This can also increase the loading on your suspension components and may not be ideal for a street-driven kit. A stiffer car will also be more twitchy under wet weather conditions.

12 You may want to consider special autocross tires that are softer than your street tires. Hoosier, among others, makes special autocross tires. Be aware that if you have two sets of wheels and tires, any change in overall diameter or offset may radically change the handling of your car. You may need to change the ride height if shorter tires are used, and this will also effectively lower your gearing for faster acceleration.

13 You may have the choice between radial and bias-ply tires. Be aware that radial tires respond better to cornering than bias-plys, so check with your tire manufacturer for suspension setup recommendations.

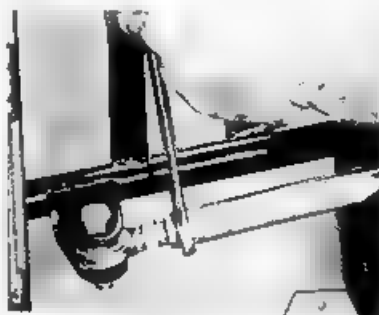
14 Street cars normally have a slight amount of toe-in in the front suspension. If you go to dead-ahead or even slightly toe-out, it can have the effect of making the car respond more quickly when you turn the wheel (called "turn-in"). For autocrossing, this can be a good thing. However, this can also make your car less stable under braking and at high speeds. You will probably want to reset your suspension before street use resumes.

15 Move all loose articles from the interior. You don't want an empty bottle to suddenly fly from under the front seat into the pedal area when you're setting up for a hard right-hander. This includes removing everything from the seatback pockets. Also secure the passenger seatback if it is adjustable. Autocrossing puts loads on your car like you will never encounter on the street.

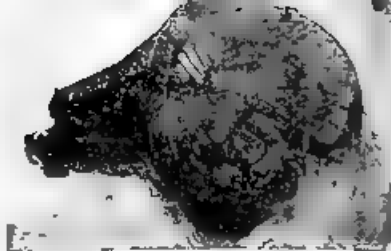
16 Lock the trunk, doors, and glove compartment before your first run. The high loadings can put enough stress on most car frames to cause them to pop open. This happens all the time.

17 If you're building your car from scratch with autocrossing in mind, you'll want to build a lightweight, responsive engine. Go with the smallest carburetor you can get away with and a cam with a wide powerband that pulls from low rpm. A good small-block will almost always kick a big-block around in this kind of racing. If the rules allow, consider aluminum heads and fuel injection for maximum response and less weight.

18 Consider a wide-ratio transmission if you have a V-8 with lots of torque. This is not for Fiero-based kits, but V-8s can benefit from shifting less. Each time you shift gears, you'll lose several car lengths, and you have to be able to make up that distance, plus some, each time you shift. Since autocrosses don't have long straights, this is difficult to do. Most tranny builders offer a range of gears, so talk to their tech people and tell them what you're doing. Wide-ratio trannies are also easier to live with on the street.



19 If you're really serious about autocrossing, or if your car feels dialed in on the track, take it to a shop that does SCCA racing cars and have the suspension aligned and checked for bumpsteer at both ends. Bumpsteer is an unstable condition where the wheels steer in and out due to geometric problems in the suspension. This is common in kit cars where the front and rear suspension are borrowed off other cars and may not have been designed to work together. The most serious condition is when the rear outside (loaded) tire points out when it goes up in its travel. This is called "roll oversteer" and can result in a spin. There will usually be some way to adjust this at either end, although it may require some fabrication.



20 A limited-slip differential will put more power to the ground. Get a clutch-type or torque-sensing unit, not a "locker" type. Lockers are marginal for high-speed road-racing conditions, but result in twitchy handling and power understeer at the low speeds encountered in autocross racing.

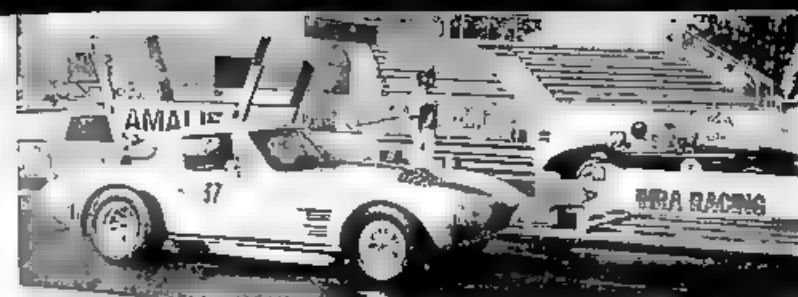
21 Before you leave for the event, strap yourself in and tighten down your shoulder harnesses. For safety purposes, they should be very tight to protect yourself in case of an accident. Make sure you can reach all the switches and controls you'll need (ignition, fuel pump, etc.). You'll be surprised at what is just out of your reach when you're tightly strapped in.

22 A smart piece of equipment is a racing-type fire extinguisher. Check with your racing group to see if a particular type is recommended. They are seldom required for autocrossing, but it could save your car if a fuel line decides to come loose.

23 Remove any hubcaps or artificial spinners that could come loose. Cobra replicas with real knock-offs should be safety wired to prevent them from loosening (we have seen lots of these with the wire running in the wrong direction). And consult with your wheel manufacturer for torque settings for your lug nuts. Get a good torque wrench and check the lugs after every run.

24 Don't use wheel adapters that change the bolt pattern for autocrossing. The high loads encountered can break them off (they will probably not be legal, anyway). If you're using spacers, check your lug-nut torque every run. Also, don't use radial-laced wire wheels. They're not designed for heavy lateral loading. In fact, wire wheels are not the best choice for autocrossing due to their lack of rigidity.

25 Autocrosses frequently take place on vast expanses of concrete in the middle of the summer. Take folding chairs, umbrellas, lunch, and plenty of liquids to keep yourself from overheating. In addition to making things more pleasant in general, you cannot drive your best when you're near heatstroke.



BRACKET DRAG RACING

If the smell of burning rubber and the feel of your back being pinned to the seat is more exciting to you than sliding around a corner, maybe bracket (handicap) racing is for you. If there is a dragstrip near where you live, chances are they have bracket races. These usually don't cost much to enter and you don't have to be that fast to do well.

The premise is that two cars of differing performance can race each other by giving the slower car a head start. This is done by each driver picking an elapsed time (e.t.) that he thinks he can run consistently. This is known as "dialing in." For instance, one driver may pick a 16-second e.t. for the quarter-mile and the other 17.5 seconds. At the start, the green light for the faster car will come on 1.5 seconds after the slower car gets the "go" signal. However, if either car goes faster than their dial-in time, they "break out" and are disqualified. If both break out, then the one that does it by the least amount is the winner. If both cars match their dial-in time, the driver with the fastest reaction time at the start will win.

The beauty of bracket racing is that there is seldom a need to regulate modifications on competing cars. If you want to run twin turbos on your big-block Cobra, and the guy in the next lane has a Fiero/Lambo with a stock four-banger, you can still have a good race. Here are some tips to get you going.

26 As with any type of racing, check the regulations before you go. Ask about helmets, safety, seatbelts, clothing, etc. For instance, some strips allow T-shirts but not tank tops. Go figure.

27 Some events may require DOT approved tires instead of slicks. BFGoodrich makes a street-strip tire for this type event. Other manufacturers make stickier tires as well. These "street tire" classes are usually reserved for amateur racers, and professionals are often excluded. This is where you want to be.

28 For drag racing, you will want to drop the tire pressures in your rear tires for more traction and less tire

slippage (which can make your e.t.'s erratic). Check with other competitors and your tire manufacturer. Front tires should be overfilled to the recommended maximum for less rolling resistance.

If you have special tires that you use just for racing, store them in plastic bags so that ozone won't make them become hard as quickly.

If you have adjustable shocks, set the front ones at full soft so the nose will come up and weight will transfer faster onto the rear tires. Special drag-racing shocks are available that have almost no resistance to bump, but are very stiff on rebound. This lets the front end come up faster and stay up longer. Set the rears at full hard.

The use of electronics in drag racing is becoming more prevalent, but some classes restrict their use. There are devices to delay the car from starting until a predetermined time has elapsed. The rear brakes and transmission are locked, and when the first yellow light comes on the tree, the driver pushes a button. Since the green light always follows the yellow at the same interval, the "delay box" won't allow the driver to leave the line until the time is up and the locks are released. This prevents the driver from "red lighting" and allows him to adjust the delay to cut a better light. Delay boxes, line locks, and data recorders are not allowed in many amateur-level events, but they are becoming more popular.

29 Some dragstrips have differing safety regulations based on how fast the car is. In the 11-second-and-up category that most kit cars fit into, you may be expected to have a catch can for your radiator overflow, seatbelts, a driveline hoop, a Snell-approved helmet, and a rollbar. In addition, you may need an SFI-approved flywheel, clutch, bellhousing, and racing seatbelts. If you break into the 10s, you'll need to add a rollcage, a fire suit, and other protection. Check on it.

30 If you're using slicks on your kit car, remember that they grow in diameter as you go down the strip. Leave plenty of clearance, or they may expand into your fenders.

31 If you're building a replica that is available with a live-axle or independent rear suspension, order the live axle if drag racing is in your future. It hooks up better and is stronger for full-throttle burnouts.

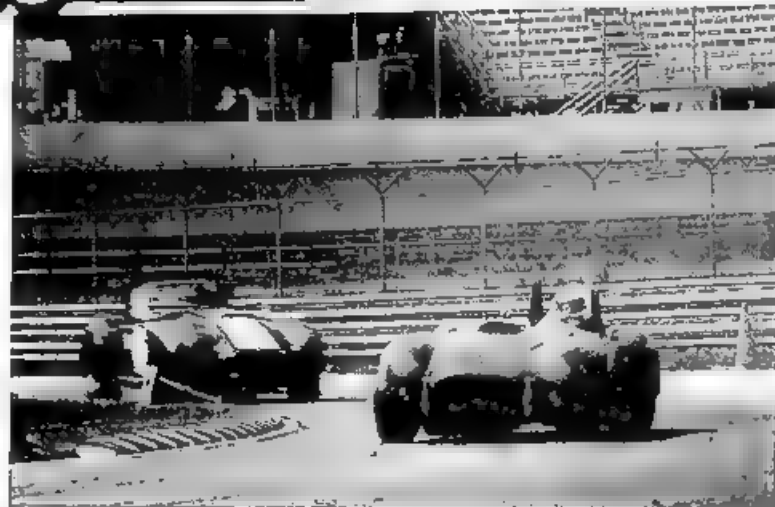
32 If you're having traction problems and your gas tank is in the rear, you might want to run with a full tank to add some weight over the rear axle.



33 Some Cobra replicas and hot-rod kits have four-link rears with a series of holes on the attaching mount. By moving the upper link from hole to hole, the amount of weight transfer from front to back can be adjusted. For street use and road racing, the links should be parallel and roughly parallel to the chassis bottom. For drag racing, drop the front of the top link to lower holes, thus increasing the angle of the top link. Consult with your kit manufacturer or an experienced racer with a similar setup about exact settings. A starting point is to have the theoretical point where the links would intersect (if they were longer) about 33 inches from the center of the rear-axle housing.

34 A "must have" safety item to include on your kit is a driveshaft hoop. This is a steel hoop that encircles the driveshaft to contain it in case a U-joint fails. You don't want a busted driveshaft flailing around your interior, particularly since many kit cars have fiberglass floors and tranny tunnels. You can buy them in bolt or weld-on form from chassis manufacturers, or have a race shop fabricate one from 1/2-inch wide steel.

50 PERFORMANCE TIPS AND TRICKS

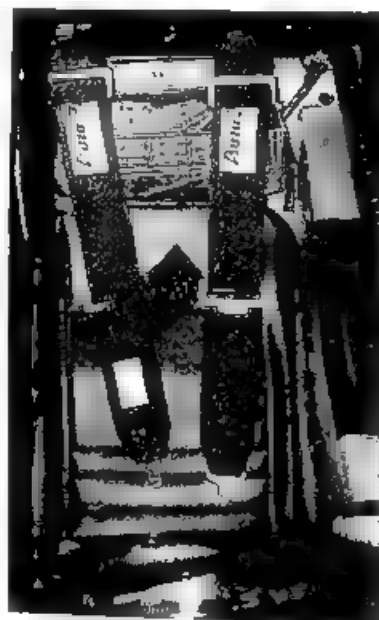


TRACK EVENTS

There are many opportunities for using your kit car on a real race track. The Shelby American Owners Club, among others, organizes track events where Cobra replicas can take part. Several kit manufacturers also put on track events for their customers. The Touring Car Club (626/284-2183) puts on track events for novices and experts alike, with a driver's school to get you started. And some vintage racing clubs will allow replicas to drive around in their "Exhibition" class at less-than-race speeds. In any case, track events are a quantum step up in speed and danger. Here are some tips:

Get adequate rollover protection. We have seen more than one Cobra replica on its top at track events. Although many Cobra and Corvette replicas have optional rollbars, make sure it is adequate for racing purposes. Some are more for show than go. Insist on a minimum of .120-inch wall thickness (mild steel) with the following diameters: 1.5 inches for a car under 1,500 pounds, 1.75 inches for 1,500 to 2,500 pounds, and 2.25 inches for over 2,500 pounds. Fore and aft braces prevent collapse, and a diagonal brace can resist side loads. The bar should attach to main frame members. Enclosed kits should consider a rollcage. Rollbars and cages should be installed by a professional.

If you have a rollbar, add some heavy foam-type padding to prevent your head from contacting it in case of a rollover. Check with places that sell circle-track equipment.

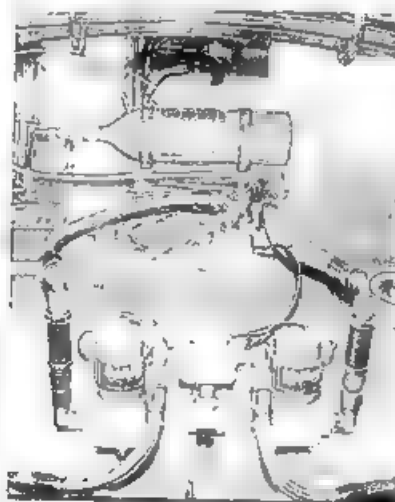


For track events you'll want racing-style five- or six-point seatbelts. All current belts have an SFI sticker on them that tells when they were made. If your belts are over five years old, replace them, as they weaken with age. And make sure they're firmly mounted on the chassis, not a fiberglass panel or floor.

For sustained lapping in a powerful car, you'll need racing brake pads that are designed for hot conditions. You may also need a high-boiling-point brake fluid (which may not be ideal for everyday use). Bleed your brakes before every track event and check for leaks.



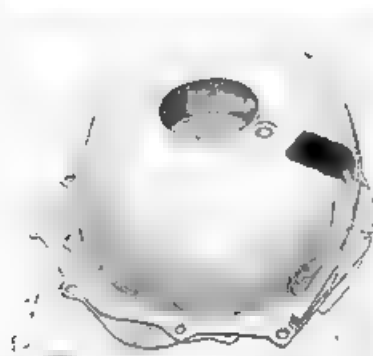
Braided brake lines give a firmer pedal and are not as likely to get damaged in an off course excursion.



Replace your gas tank with a fuel cell (many kits now come with them as standard equipment). Cells come in many sizes and shapes, and you'll need a metal container to go around it.

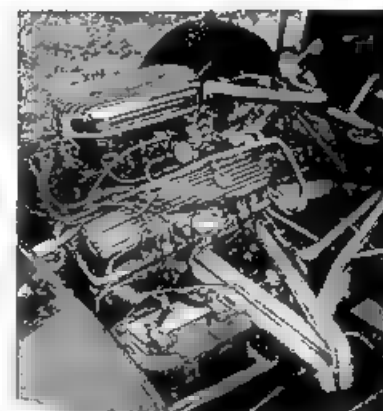


Get a fireproof racing suit with gloves, socks, and shoes. A single or two-layer suit will also require fireproof underwear, but a three-layer suit does not. Of course, you'll need a racing helmet with a current Snell sticker. If you have a mustache or a beard, you'll also need a balaclava to go over your head.



Most racing organizations require a scattershield for your clutch and flywheel to contain everything in case of an explosion. A V-8 flywheel can pack as much power as a hand grenade, and we have seen Cobras virtually torn in half by this. Using a steel or aluminum flywheel will help, but you still need the scattershield. They're available for popular applications, or a ballistic nylon version can be had that straps around special cases.

Road racing requires 1-quart catch cans that keep liquids off the track. One will be for the radiator overflow, and another for the engine vents. If your gearbox has a vent (VW), it will need one too. These should be vented



by a filtered breather to allow liquid to flow into them. Catch cans are available from race car suppliers, or you can build your own from rectangular paint cans. Make sure they can be drained easily.

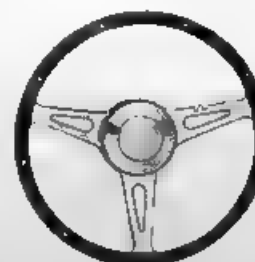
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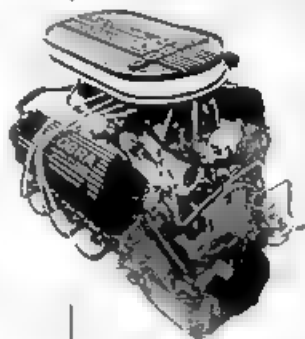
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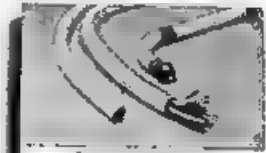
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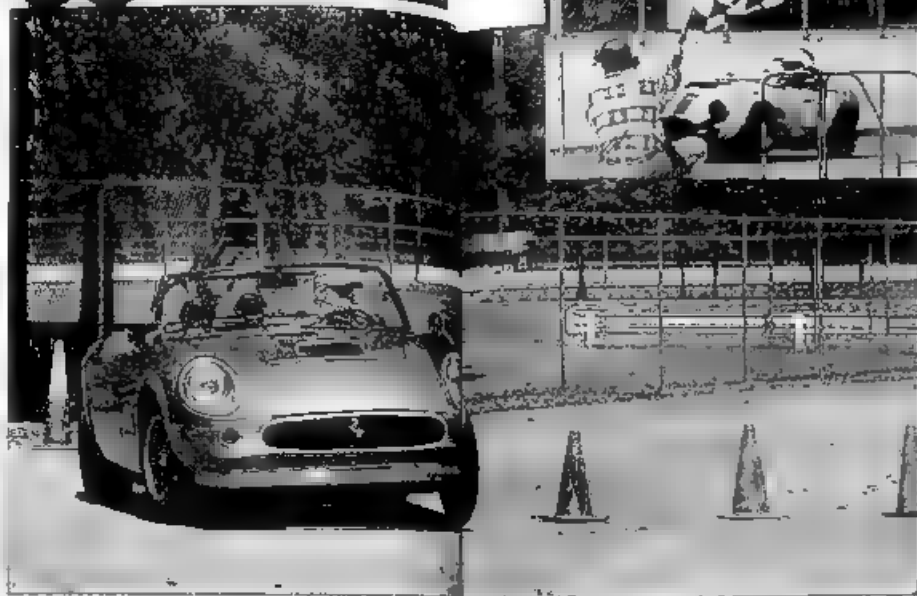
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Add an oil-temperature gauge
This tells you if your engine is having
problems before it comes apart. Place
the sender where it's in a stream of
running oil

Ask your tire manufacturer for
correct pressures. Road-racing tires
may run at lower pressures than
autocross tires but, if in doubt, run
too much rather than too little. When
you come in off the track, look at the
tires carefully to see if you're using all
the tread width. If it looks like the
center is wearing but the edges are
not, you may have too much pressure.
Ask a tire technician (often available
at track events) for advice

Racing fuel is usually available at
track events but, unless you have a
high compression ratio (10.5:1 or more),
you'll probably not get any performance
advantage from paying \$4 or more per
gallon for 102-plus octane fuel.

And finally...
Best tip for any type of racing?
Go through a driving school. There
are schools for road racing (Bon-
durant, Jim Russell, etc.), or drag
racing (Frank Hawley), and many
local SCCA regions frequently put on
autocrossing schools. A good founda-
tion in car control will usually make
more difference in your performance
than all the hop-up parts you can buy



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Finding this car was just one of those fortuitous events that come along every once in a while. You know, you're cruising through familiar surroundings when something very cool unexpectedly catches your attention. It's a treat. Such was the case of John A. bus, an awesome Cobra replica sitting idle in the JPS Motorsports shop awaiting a new rear spindle. The handsome car appeared well found and nicely detailed, but a glance under the hood revealed another story entirely. This

thing has the heart of a beast but, as it turns out, the soft-spoken personality of a kung fu master.

Big-blocks and Cobra replicas just naturally go together like ham and eggs. But in this case, instead of settling for old school technology, John opted to build an engine system that would be as efficient in traffic as it would be hard-charging the apexes of some road course. The 453ci, 500-hp engine's induction, fuel delivery, and ignition are all controlled by an Electromotive TEC II electronic

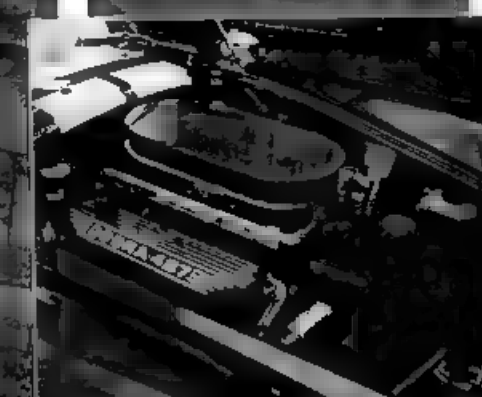
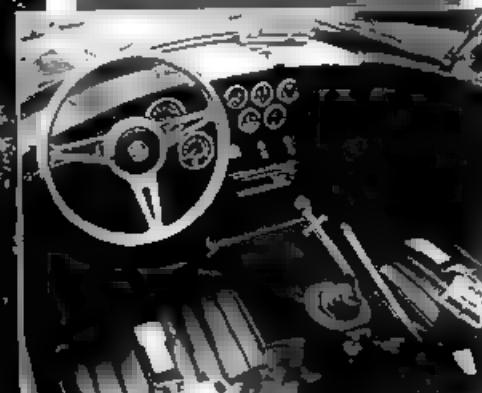
It Took Awhile to Finish, Then Rebuild, But it Was Well Worth the Effort

By Jim Youngs

PHOTOGRAPHY: JIM YOUNGS

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10 Years After



engine-management system which consists of an onboard computer and four coils replacing the distributor. The computer takes crankshaft position readings, among other engine data, from a special magnetic pickup sensor mounted behind the harmonic damper.

Automation of Rockville, Maryland, modified the Edelbrock Performer RPM manifold to accept a port fuel-injection setup and, in place of a carburetor, an Electromotive 1,600-cfm air door regulates incoming air.

Dove Hi-Velocity FE heads were chosen, fitted with medium-riser valves and a valvetrain featuring roller tips, Competition Cams roller cam, and roller rockers. The heads were flowed by Automation and showed great flow characteristics in the .200- to .500-inch lifts, indicating a cam with a huge lift was not necessary. The Comp Cams grind was chosen for a fat

2,000- to 6,200-rpm torque curve. "Because of the relatively conservative lift for a big-block roller cam and moderate rpm, the dual spring pressures were kept fairly light to enhance longevity of the valvetrain for long trips and years of trouble-free usage," Albus said.

Once the car was finished and the tuning began in earnest, an accident caused by an overzealous throttle application in slippery conditions, caused the car to be laid up while repairs were made. Now that the car is running again, final tuning is being conducted. "I don't regret for a day selling the original medium-riser induction system to fund the purchase of the TEC-II system. I must say that the system takes a bit of devotion and learning to become proficient with it but, man, is it worth it!"

John continued to relate examples of its worth, citing great customer support from Electromotive. "The Cobra is currently with a friend, Boris Podteteneyev in Northern California, undergoing some testing on the road and at a local circle track. Boris described some problems with richness-induced stumbling when feathering the throttle from a cruise condition. I adjusted the program for the TEC-II to lean out the motor from 2,000 to 4,800 rpm at cruise and above (but not at full throttle) as a function of rpm versus manifold pressure. I did this on my home computer, e-mailed the program to Boris who downloaded it to a laptop, then downloaded it into the TEC-II computer. The stumbling was cured from 530 miles away within an hour. We continue to test various changes to wring out better driveability and performance from the motor. The system also gives complete control over the spark curve based on similar functions. This ignition and fuel-control

system is the most satisfying part of the car."

We couldn't agree more. We were able to take John's car for a relatively short romp through the city and up into the foothills of Southern California. It's an impressive package with smooth power delivery, instant throttle response, and that reserved-until-needed energy of the kung fu master. To say that the car is fast is an understatement, but its stop-light-to-stoplight smoothness and tractability would be hard to beat in a non-computer-controlled vehicle.

John started his project in 1989, based on an inexpensive kit and chassis. As he told us, "I learned fiberglass work, body aesthetics, chassis engineering, metal fabrication, and structural design. The work was completed by me with the help of Boris, Rex Levi, and Tal Cohen. John Steele at JPS Motorsports/Auto FLM in North Hollywood, California, is credited with the body and paint, upholstery, and bringing the car back to life after the crash. The car you see here bears little resemblance to what John started with. In addition to extensive chassis modifications, the body was literally sectioned, corrected, and modified to suit a critical eye. The rear fenders and lips, for example, were reshaped, the front fenders were cut completely off, and new ones hand-fabricated.

The chassis was reinforced to increase torsional rigidity, and new suspension components were designed. The original chassis was set up for Mustang II front pieces which were changed to an original upper and lower control-arm geometry. John designed the front and rear suspension components using a program called CAR v4.0 (Computer Aided Racing). The suspension uses Aldan coilovers and a TCI front swaybar

The steering rack is a lengthened aluminum MG piece additionally modified to fit Mustang II tie rods.

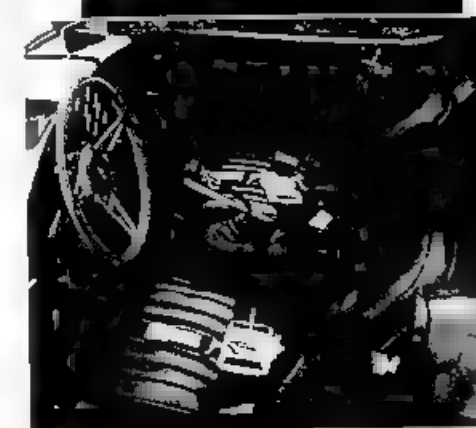
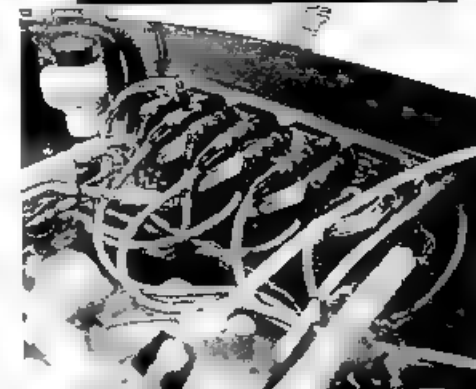
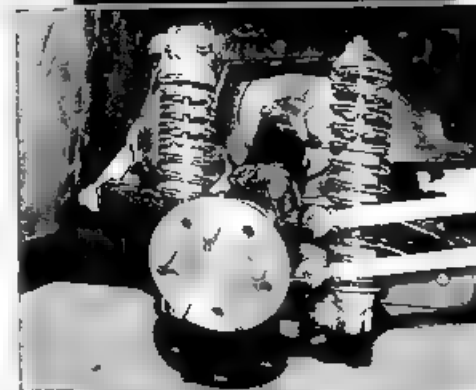
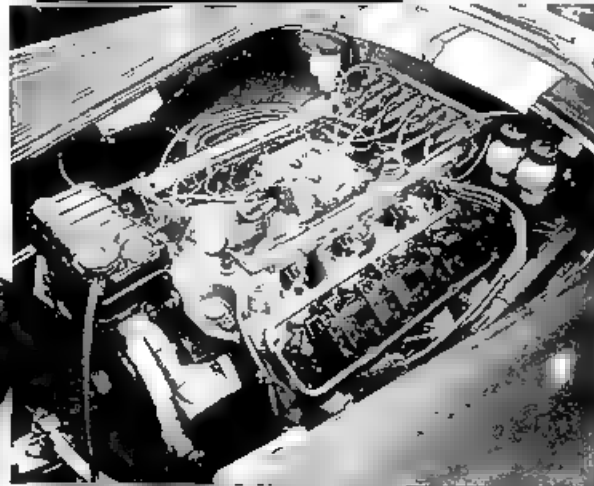
The rear sports a 9-inch Ford pumpkin from TSM of Littleton, Colorado, fitted with Lincoln rotors and early-'80s Toronado calipers mounted inboard. The halfshafts are 3-inch tubes welded to Dana/Spicer truck U-joints. The hub carriers employ extra-heavy-duty bearings and custom-made billet axle stubs. The componentry is located by lower control arms (upper control is handled by the axle stubs) and a four-link trailing-arm setup was designed and fabricated to hold the hub carriers. Anti-toe linkage was also designed and employed.

As if the music from the thundering side pipes wasn't enough, the car was fitted with a kickin' sound system comprised of Boston Acoustics speakers, 10-inch woofer in the trunk, Clarion CD head unit, and Rockford Fosgate amplifier. The rest of the interior is usual fare, with comfortable custom seats, wood-trimmed wheel, and an assortment of Stewart-Warner gauges.

Those cool wheels are rare Shelby American Mini Europas that were widened by PS Engineering in Torrance, California.

As we said, it's really a treat to stumble across such a nice piece of machinery. The bonus in this case was that we got to take it for a spin and experience the efficient operation of a computer-controlled road rocket.

John started his project in 1989, based on an inexpensive kit and chassis.

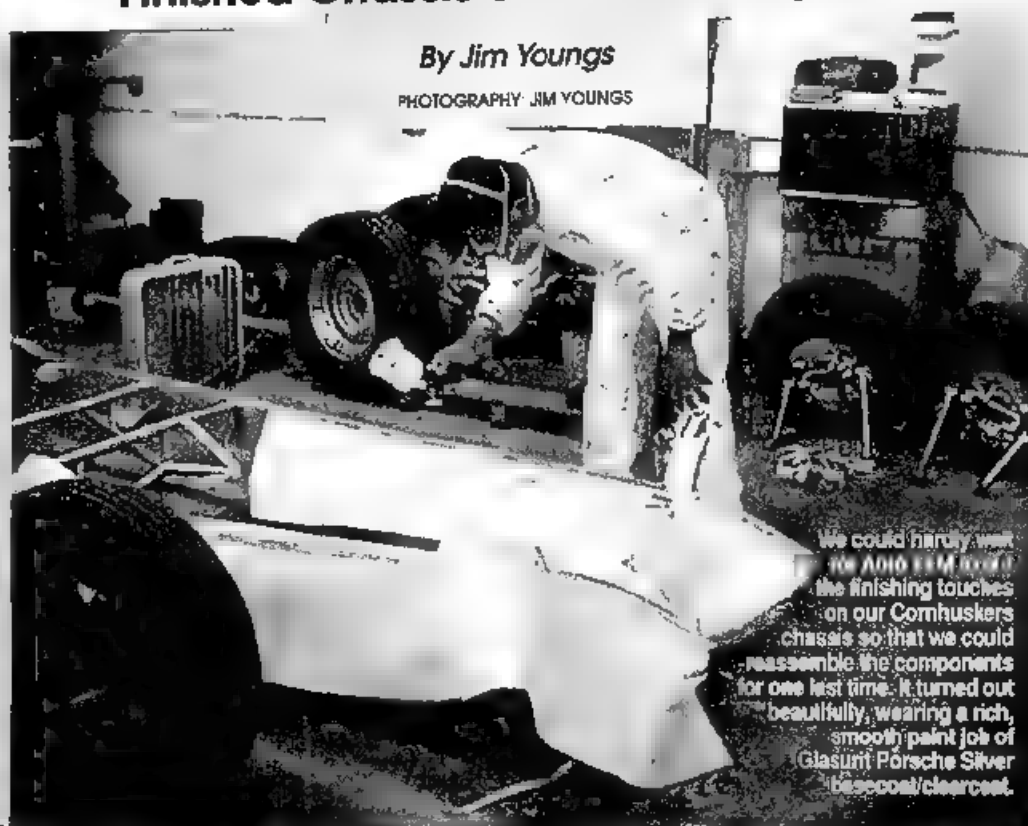


'32 Hiboy Update

Our Street Rod Project Finally Has a Beautifully Finished Chassis and Final Bodywork

By Jim Youngs

PHOTOGRAPHY: JIM YOUNGS



We could hardly wait to add the finishing touches on our Cornhuskers chassis so that we could reassemble the components for one last time. It turned out beautifully, wearing a rich, smooth paint job of Glasurit Porsche Silver basecoat/clearcoat.

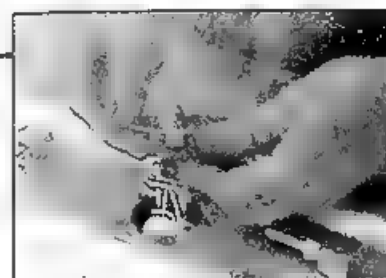
Things always take longer than expected, particularly when you have to rely on others to complete tasks that are not in your skill bag. We also spend considerable time waiting for ordered components, scouring hardware stores for appropriate fasteners, discussing ways to install stuff, sourcing components, and generally bench racing in the meantime. There seemed to have been an inordinate amount of time go by between the time we initially assembled the Cornhuskers chassis and suspension components (see *Kit Car*, Mar. '99) and when the frame emerged from the paint booth. Once the final touch-up was accomplished, however, we quickly forgot about any time lapse and set about reassembling the components for the last time.

The Auto FLM crew did a great

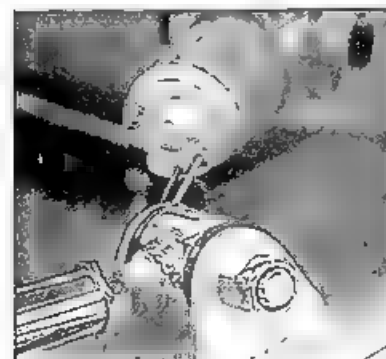
prep and paint job on the chassis, slathering on multiple coats of Glasurit Porsche Silver basecoat followed by several layers of clearcoat. Additionally, the Tanks Inc. stainless steel gas tank was painted to match the frame, as was the Currie 9-inch rear end and Randy's Ring & Pinion Service third member. We reinstalled the rear end, located by a chrome 4-link setup, and put the beautiful TCI polished aluminum and chrome IFS back in place. The four-wheel Wilwood disc brakes and Pete & Jakes coilovers were bolted on at each corner, and our Stockton Wheel painted steelies shod with Cooper Cobra rubber remounted. Our wheels wear stainless Ford-logo moons and ribbed beauty rims. We also did the final install on the Master Power Brakes master cylinder, booster and pedal assembly, and secured the

brake lines (see *Kit Car* July '99) in their proper positions.

Once the chassis was a true roller, it was time for the engine and transmission to be installed. Before hoisting the Ford SVO small-block engine fitted with aluminum heads, however, we thoroughly cleaned the A-1 Automatic Transmissions C4 tranny case and hit it with a couple of coats of flat black rattle can. We added a flexplate from Windsor-Fox Performance and a torque converter from A-1. With both units bolted together, we hoisted them with a cherry picker and managed to slip them between the frame rails, thankfully without coming close to nicking the fresh paint. With the engine and trans in place, we made our measurements to order a Denny's driveshaft. Denny's provides a "How To Measure Correctly" flyer so that costly mistakes are avoided.



1 Once the Tanks Inc. original-style gas tank was bolted to the rear frame rails, we added fittings for fuel and return lines, a barbed fitting for a check valve/vent, and a universal fuel-level sender from Auto Meter.

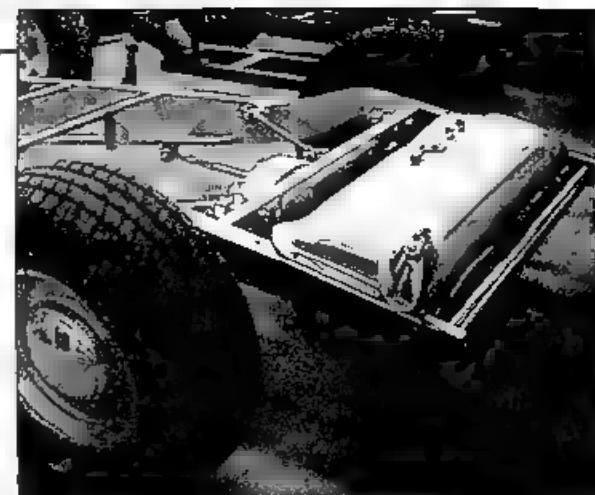


2 Below the tank on the rear crossmember, we added a Holley "Blue" electric fuel pump that chums out 110 gph at 17 psi.

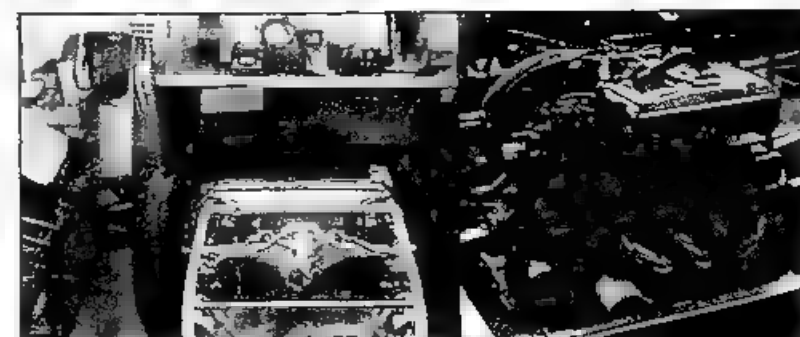
With the smooth original-style gas tank in place, we added fittings for fuel and return lines, a hose barb fitting for a check valve/vent, and an Auto Meter fuel-level sender. Below the tank on the back crossmember, we installed a Holley "Blue" electric fuel pump and regulator designed for street/strip applications with preset pressure of 14 psi and rated for 110 gph. The final step before the finished Lone Star body is remounted is routing the fuel lines to the engine.

During our reassembly of the chassis, the fiberglass was undergoing final bodywork and fitting so that door and trunk seams are even, the Dan Fink windshield is properly placed, the body is smoothed, and the hood, grille shell, and cowl lines are straight. We also reinforced the door latches to assure long life, and tabbed the body to its steel inner structure with fiberglass.

At the time this is being written, we are awaiting word that the body has been painted and is ready to be lowered onto the chassis and bolted in place. Then things will surely rip along toward completion as we add the many components we have standing at the ready. Stay tuned.



3 The shiny gas tank is a handsome piece, but someone walked off with our gas cap. Chrome spreader bars were also added fore and aft. The only thing left to do on the chassis is routing the fuel and return lines. Electrical work will be completed at a later date.

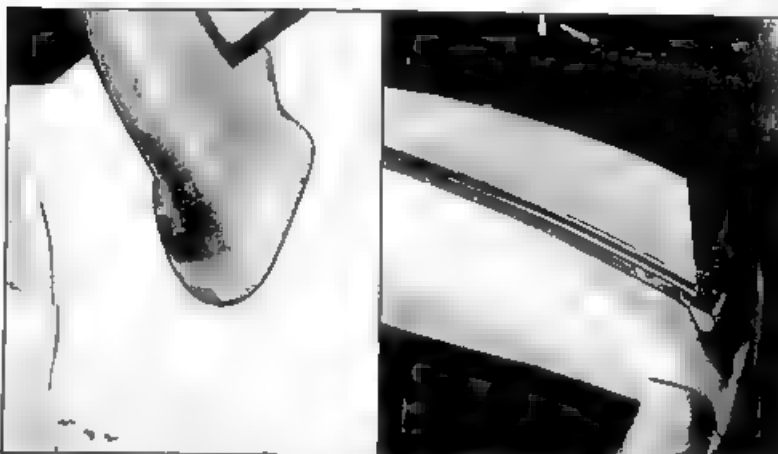
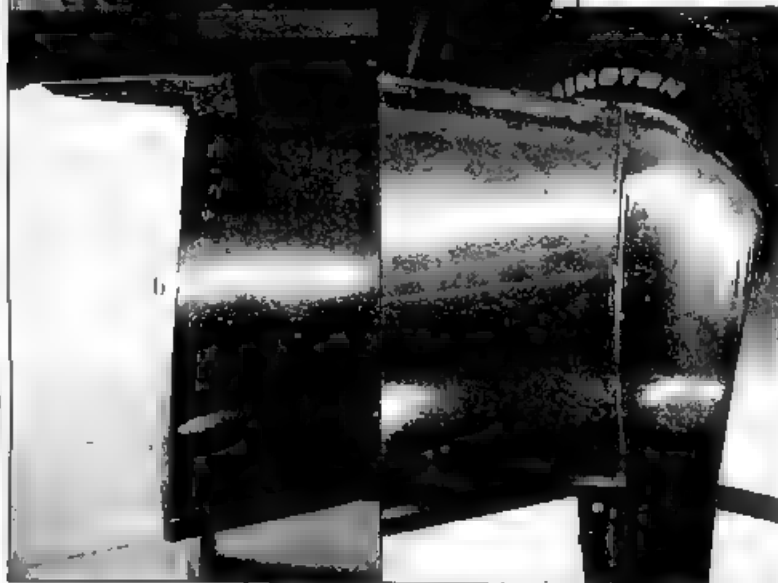


4 We think the chassis came out rather well and presents a clean appearance. The body will also be painted by Auto FLM with Glasurit Porsche Silver to match the frame.





5 Bodywork on the Lone Star '32 body included not only fitting the doors and trunk lid and dealing with some slight voids and high spots, but also fitting and trimming the hood to match the cowl and grille shell lines.



6 We chose a slick Dan Fink chopped windshield frame which happened to be a shade on the wide side for our body. It's fairly typical that universal components will differ from body to body, given the vagaries of molding, tooling, etc. Auto FLM's solution was to build up a fiberglass pad area under the stanchions and build up the area under the lower frame rail to match the contour of the windshield frame. The modifications are hardly discernible.



7 To add some longevity to the door latches, we beefed up the striker post brackets with added reinforcement.



8 To help maintain the body's alignment, we tabbed the steel inner structure to the body with fiberglass in several locations such as the kick panel, under dash, and under the rear coaming.

SOURCES

Automatic Transmissions
Dept. KC
7300 Canoga Ave.
Canoga Park, CA 91308
818/884-0823

Chassis & torque converter

Auto FLM
Dept. KC
11325 Vanowen St.
N. Hollywood, CA 91605
818/880-8888
bodywork & paint

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805/744-8841
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Comhuskers Rod & Custom
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Alexandria, NE 68303
chassis

Cooper Tire & Rubber Co.
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Findlay, OH 45840
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Mission Statement

Star Scott...chose a Grand Sport because he considered it the most aggressive-looking musclecar ever made.



HOT & FAST KITS!

God is Certainly in the Details of This One-off Grand Sport

By Jim Youngs

Star Scott, a pastor of the Calvary Temple Church in Sterling, Virginia, chose a Grand Sport because he considered it the most aggressive-looking musclecar ever made. He's also had a lasting love for Corvettes and, in fact, has owned seven different models, among other musclecars. Star's GS is loaded with nove, features and serves alongside a blown '92 LT1 and a hot '94 ZR-1, as the focal point of his "Finish the Race Ministries."

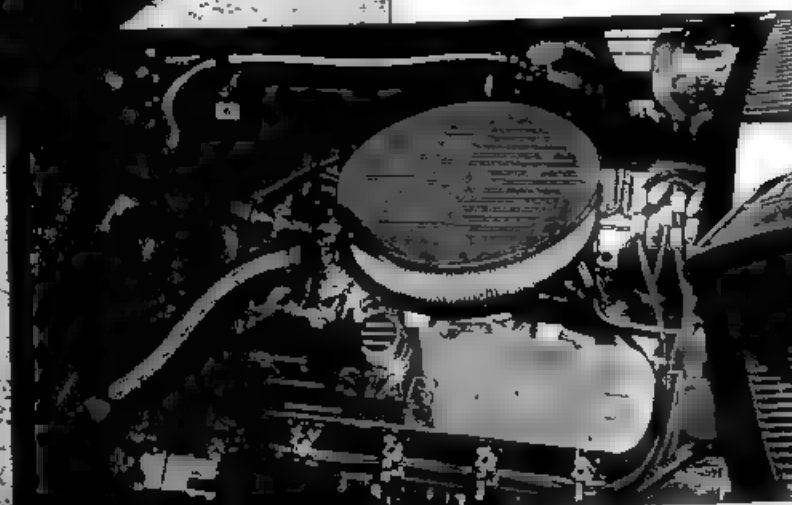
We won't go into the short-lived history of the Grand Sport except to say that those potentially formidable, secretly developed Corvettes got their GM factory umbilicals cut prema-

turely, before they had a chance to really prove themselves against the intended Shelby Cobra targets. Early testing and some ultimate privateer competition showed the car to be wickedly fast. Homage to the ill-fated GS is apparent today as the five extant Corvette Grand Sports are among the most expensive and sought-after cars on the collector scene.

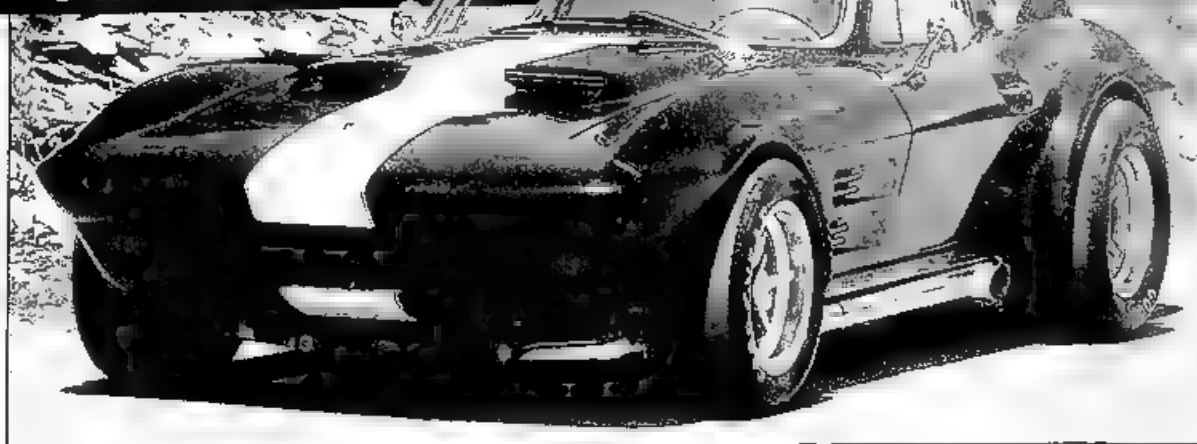
Called the Star L88, the car was built on a custom tube chassis by Jeffery Leech. Front- and rear-suspension setups are from a C5 series Corvette with disc brakes, rack-and-pinion steering, and coilover shocks. The car additionally benefits

from an ABS braking system, the control mechanism for which is located in the trunk. American Racing 200 alloys wrapped with sticky Goodyear Blue Streak Racing rubber reside at all four corners. The chassis is additionally stiffened with a four-point rollcage.

As you can imagine, a car



Mission Statement



that looks this tough better be able to back up the appearance with performance potential. Star's Grand Sport is motivated by a big-block L88, 427ci Chev, with 12:1 compression, that pushes the 550hp range. Star expects the car to hit the traps in the high 11 second range at speeds over 120 mph in the quarter-mile. The engine wears custom headers, forged crank, aluminum pistons, roller rockers, aluminum heads, 850-cfm double-pumper carb, MSD ignition, and Pro Billet distributor. The big-block is backed up by a Muncie M22 Rock Crusher four-speed tranny and Blow Proof scattershield. The rear end has 3.73:1 gears.

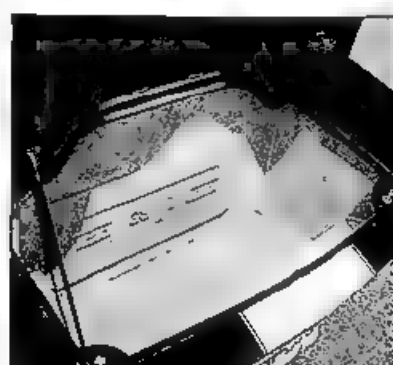
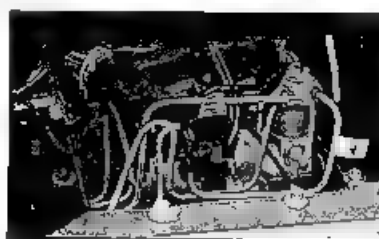
The interior features a pair of '78 Indy Pace Car seats s.athered in Con-

If there were a class for cars with the most scoops, vents, and louvers, the Grand Sport would surely take the honor without much competition.

nolly leather, Auto Meter Pro Comp gauges mounted in a brushed-aluminum dash, and a tilt steering column. Door panels and dash top are covered in matching upholstery, and the trunk panel and door panels feature embossed GSII insignias. The upholstery and carpet materials are Rolls Royce spec materials. The rear window is made of plexiglass with a custom molding.

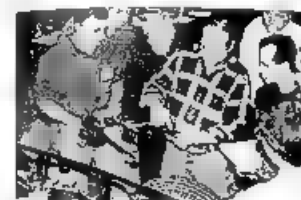
If there were a class for cars with the most scoops, vents, and louvers, the Grand Sport would surely take the honor without much competition. Star's GS has faithful vent locations and even has functional rear fender scoops for brake cooling. The car was painted by Jeffery Leech with Black Sapphire enamel with clearcoat, and you can see what a stunning vision it presents.

Star Scott's Grand Sport one-off replica has been featured on cable television shows and has taken home its share of top show awards. With the kind of attention to detail in this car, it will surely go on to be a big winner and easily surpass the record of the car on which it is based. **KC**

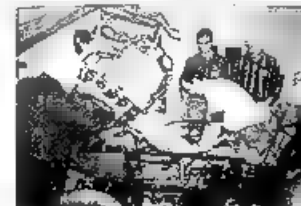


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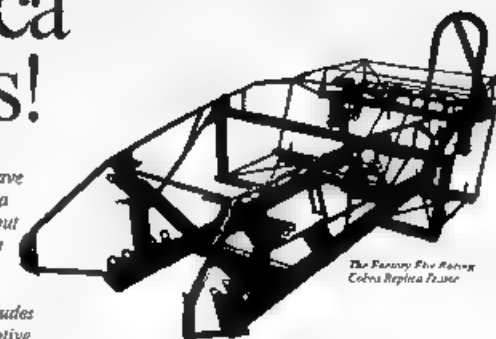


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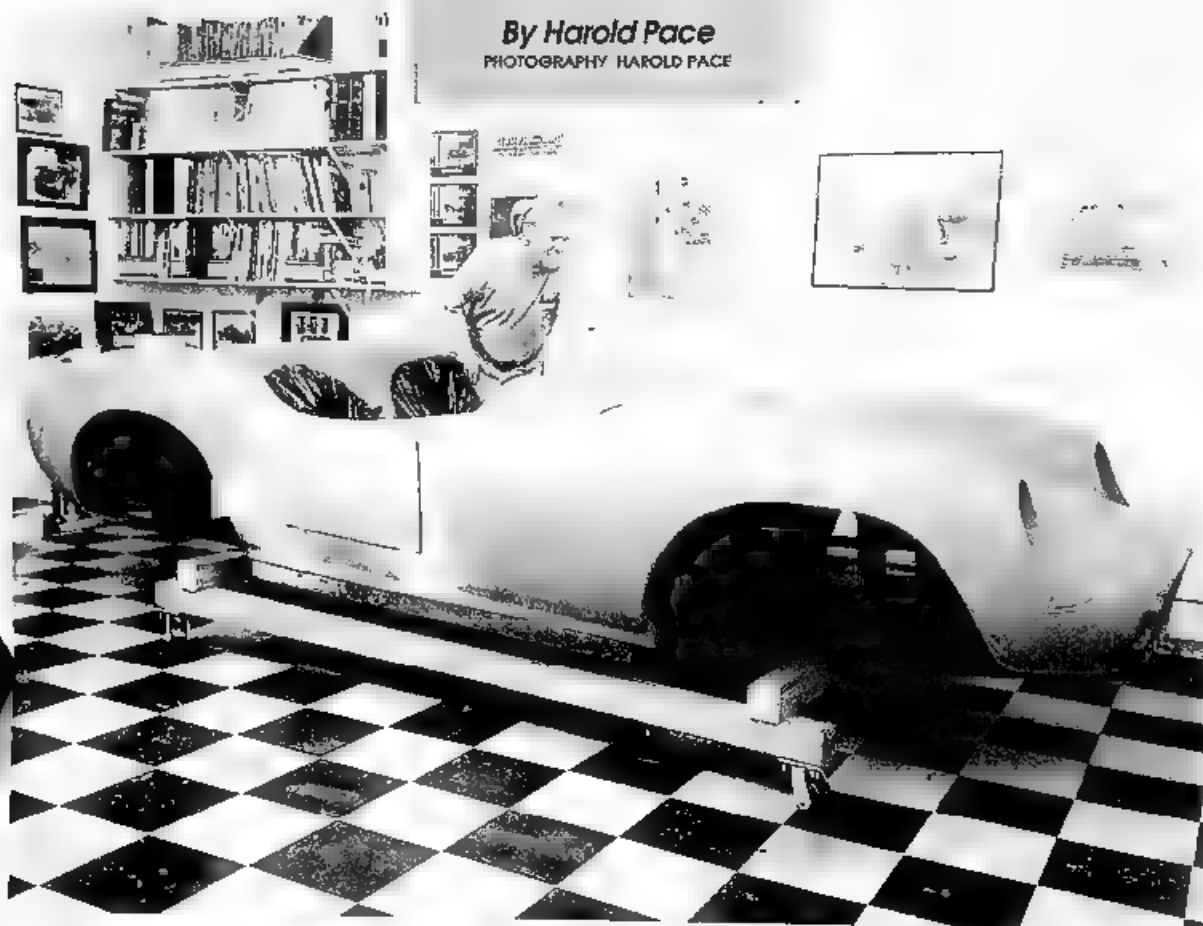
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Build A Kit Car

This Simple Dolly Project Gets Your Kit Off the Ground, and Saves Time and Your Back

By Harold Pace
PHOTOGRAPHY HAROLD PACE



A partially completed kit car can be a logistical nightmare (we're talking about bare-bones kits like Cobras and such, where you have to assemble everything, not just replace a panel here and there). The frame and body are likely to be too heavy for one person to easily horse around, and building a car sitting flat on the floor is a strain on the old back (if you have a young back, you just wait...). Invariably, during the course of assembling your kit, you'll need to move it for some obscure reason. Like maybe you forgot that the attic entrance is right above the car, and suddenly your spouse just has to have something that's been cheerfully

1 Our finished dolly makes rolling a kit around the shop an easy task. You'll need to determine length of side members based on your own kit chassis. Be sure to make it long enough so that the kit won't tip when heavy suspension components are installed. The dolly for this Devin uses 8-foot side members.

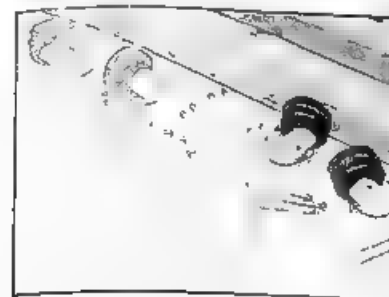
habituating the overhead for the last decade. Having your car on jackstands can be a real pain, and jackstands are prone to being kicked or toppled over by vigorous assembly operations.

Professional car builders at rod shops and racing teams have fabricated metal racks with casters for easy mobility and assembly. However, these require welding equipment for assembly and a permanent place to store them between jobs. What we had in mind was an inex-

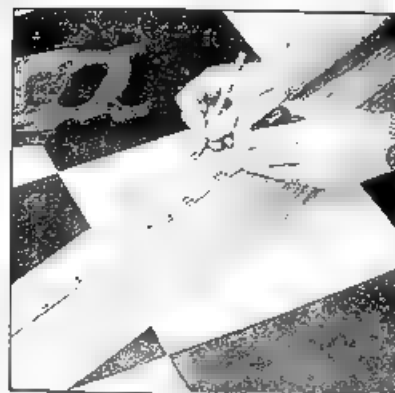
pensive, portable wooden dolly that can be built with simple handtools and disassembled for ease of storage.

NOTE: Do not lie under your car while it's on a dolly. Add stands for insurance before crawling underneath. This dolly is intended to provide a mobile working surface while the suspension, brakes, and steering are installed. Once the car is on its own wheels and tires, you can install the engine and transmission.

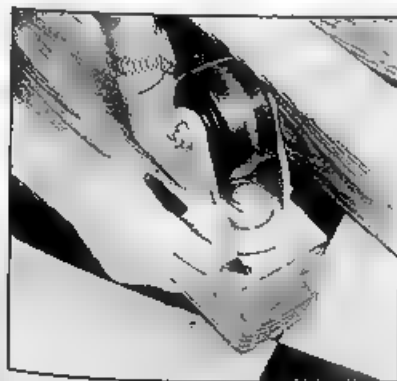
Let's get with it.



2 Here are our dolly parts: three 8-foot-long 4x4s, four swiveling casters (each with a 700-pound rating), and carriage bolts with nuts. Make sure the weight rating for the casters exceeds the weight of your kit, divided by four. If desired, you can get casters with toe locks (not shown) to prevent the cart from rolling on uneven surfaces. Casters are sold at better-equipped hardware stores and specialty caster dealers. Total cost was under \$100. Note that one board has been cut in half to make two end pieces (see step 3).



3 Measure and cut one board to serve as end pieces. Width may vary, but should be approximately the same width as your frame.



4 Lay casters on the ends of the long side pieces and mark the bolt locations. Carriage bolts should fit the holes in casters and extend through the board (5 inches).

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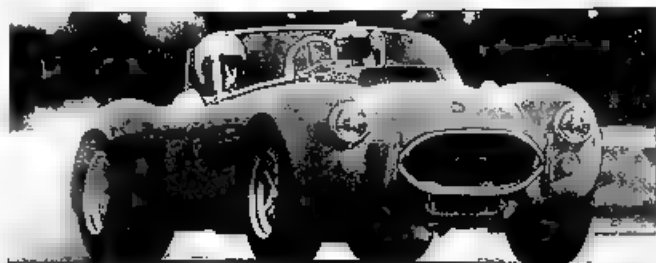
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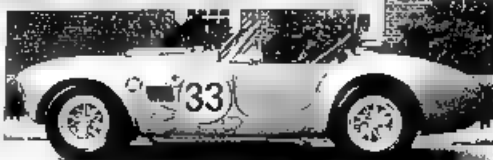


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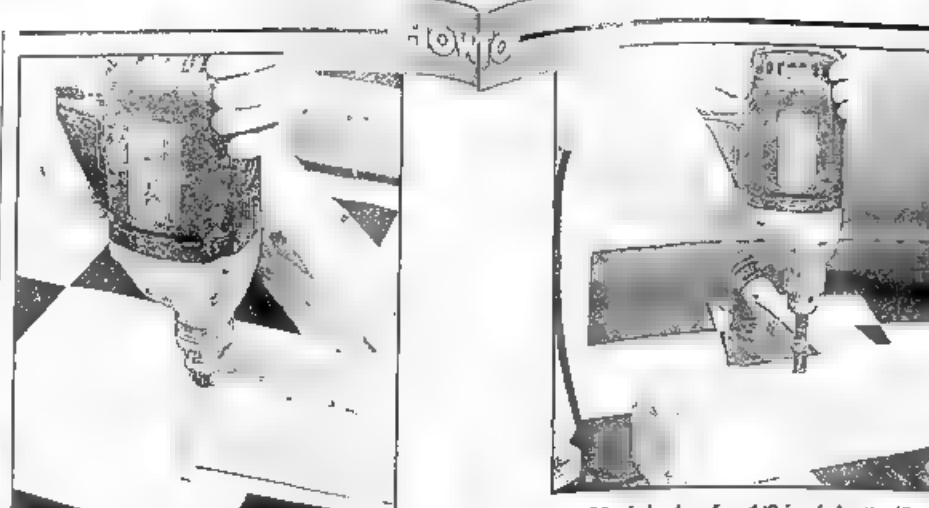
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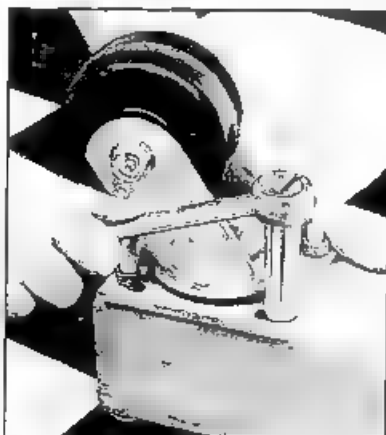
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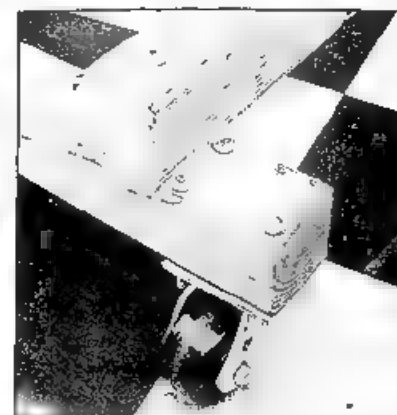
5 Drill holes for the retaining bolts that will attach the casters. If you have a drill press, it will make the holes straighter. If not, be careful, and make sure your drill is square to the surface.



6 Attach the casters with carriage bolts, with the threaded portion and the nut at the bottom.



7 Mark holes for 1/2-inch bolts (8 inches long) that will attach the side and end boards. Center it in the board and place it close to the casters. Drill both ends of the side and end boards.



8 Bolt the boards together. The dolly can be quickly disassembled for storage or transport, and reassembled any time you need it.

9 Here, the completed dolly is ready to be installed under our project Devlin (note PVC tubes under the car that formerly provided limited mobility). This is a half-day assembly job that will make your project go a lot quicker and prevent a lot of bending over (a roll-around shop seat is also a worthwhile addition).

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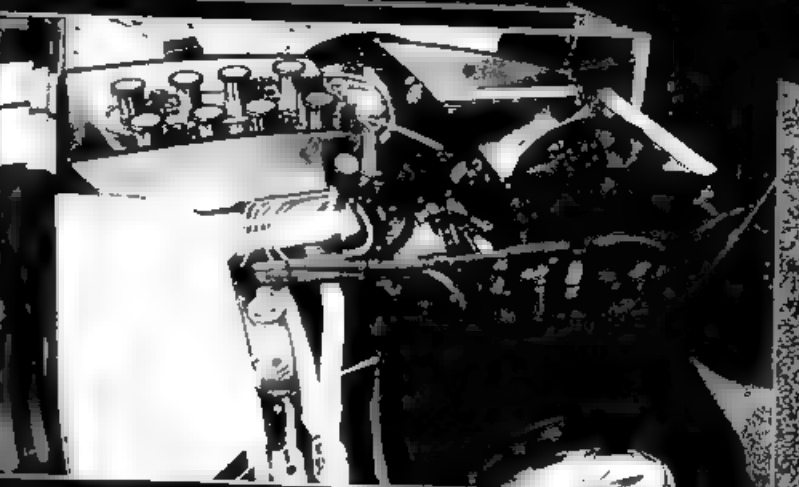
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Giant Killer



By Joe Greeves
PHOTOGRAPHY: JOE GREEVES

The Daytona Coupe, named after the location of its first race, was built with one purpose in mind—to end Ferrari's domination of the World Manufacturers Championship. Ferrari's number-one position had never been seriously challenged, until a brash young Texas came along, intent on unseating Ferrari from its prancing horse. Carroll Shelby's lightweight Cobras, packed with

big-inch American muscle, had enough venom to intimidate the rearing stallion, but the cars simply could not compete on the long, high speed Mulanase Straight. With the aerodynamic sophistication of a rocket-powered brick, the cars topped out far less than their streamlined, blood-red competition.

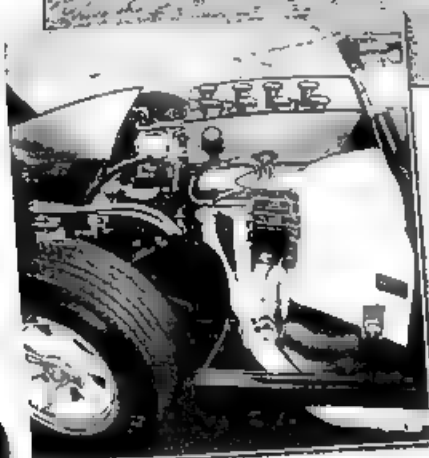
Enter Peter Brock, Shelby's design wizard, with his ideas for a super-

deek version of the already formidable roadster. Starting with a standard Cobra chassis, Brock established a lower overall center of gravity and added a full bellypan. He reduced the frontal area by tilting the radiator, then recessed the driving lights and covered the headlights with plexiglass. A raked windshield, sloping fastback, and truncated Kamm tail wrapped up the changes. The cars were an instant success, adding 15 mph to the top speed, and significantly increasing gas

mileage. Six coupes were built, and along with the venerable roadsters, they competed head to head with Ferrari's best, finally taking the '65 World Manufacturers Championship in Reims, France. Ferrari's domination had been eclipsed by heavy-hitting American V-8s, and several accurate guesses in the fledgling science of automotive aerodynamics.

The coupe's slippery shape also played well at Bonnaville. *Continued*

Giant Killer



with Craig Breedlove setting 23 national and international records in 12 hours. The car covered 1,800 miles, averaging more than 150 mph on pump gas, and burning less than one quart of oil.

The Daytona coupe replica, shown in the photos, resembles the original, since it is one of only six made by Contemporary Classics in its short production run. Built for a customer in South Africa, the car languished there for several years before returning to the states. Cobra Restorers Ltd., of Kennesaw, Georgia sold the shell to Georgia auto dealer Chris Green, then helped him complete the car.

The coupe uses an authentic, 4-inch round tube, ladder frame with several additional crossmembers added for strength. The 90-inch wheelbase runs an independent Salisbury rear, 3.30 gears, inboard 11-inch Wilwood brakes, and Koni coilovers. Up front is an interesting combination of unequal length A-arms, torsion bars, and Koni shock

absorbers. PS Engineering 15 inch rims are wrapped in 8-inch-wide, 265-15 Goodyear Eagles up front, while the rear uses 10-inch-wide 275-15s. Under the one piece, tilt-forward hood, there is a thundering 375hp, 289ci, Ford high-performance engine. Four two-barrel Weber 40 IDA carbs provide the ultimate in free-breathing with one throat per cylinder. Forged flat-top pistons and Ford Hi-Po rods and crank were fitted by Jackie Jones Ford in Cleveland, Georgia. Cobra Restorers added custom Tubular Automotive headers, which feed into a 3-inch exhaust system with side pipes. A four-speed Tbp Loader trans and a Ford Hi-Po clutch get the power to the ground.

The hand-laid, black gelcoat body has more scoops than Baskin Robbins, and all are functional—even the slim acrylic A-pillar scoop that funnels air along the side of the car to the rear brake ducts. The aerodynamic acrylic headlight covers contain two small lights inside each headlight housing. The first set shines forward and acts as signal lights. The second set shines backward, illuminating the reflectors inside the headlights and acting as parking lights. Additional mini lights illuminate the side and rear numbers in the rondels. Cobra Restorers cut an oil-access door in the hood, making it easier to check vital fluids. The company also converted the rear window into a functional hatchback, simplifying access to the rear-mounted battery.

The race car heritage is carried into the black vinyl interior. Stewart-Warner gauges report timely info to the driver, while the short-throw shifter resides in the center console. Instead of flat black paint for the dash, doors, and floors, Cobra Restorers softened the stripped-down-racer-look with upholstered vinyl and carpet. The frosty-cold air conditioning unit is a welcome option during warm Georgia summers.

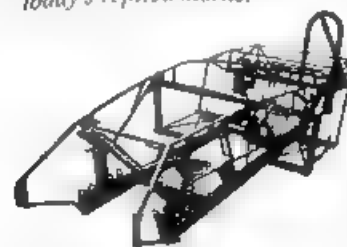
The completed Coupe has become a treasured addition to Green's collection, which includes such notables as an original 427 Cobra, a pair of Vipers, a Ferrari GTE 350, '55 T-Bird, and more. If you wish to include the car that humbled Ferrari in your collection, Upstate Super Replicas Inc. will sell you a body and frame package for \$24,999—a semicomplete package that includes everything but the drivetrain, paint, and plumbing for \$66,500; or a full competition turnkey with a 351 Windsor for \$90,000. **KC**

SOURCES

Cobra Restorers Ltd.
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Kennesaw, GA 30144
770/427-0020

Upstate Super Replicas Inc.
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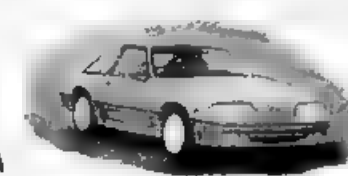


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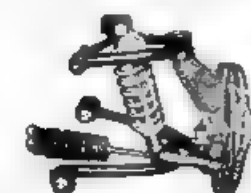
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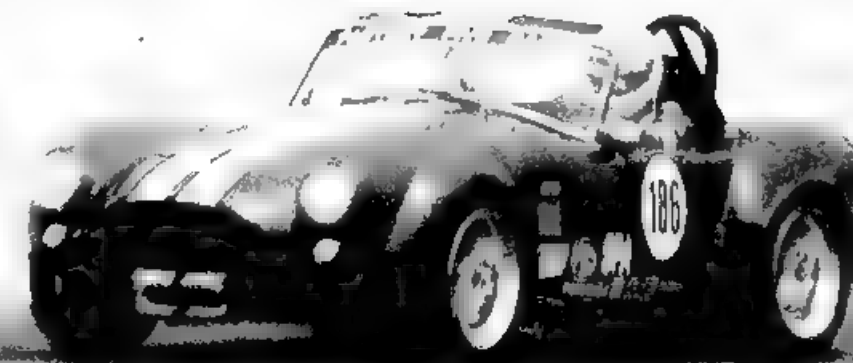


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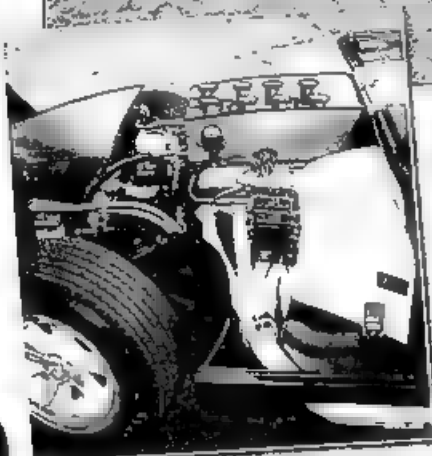


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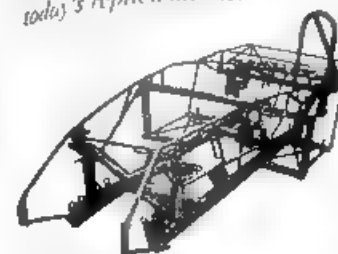
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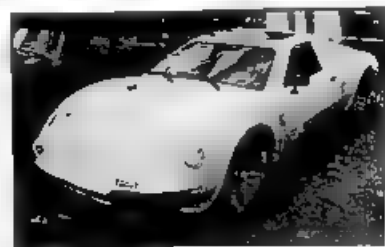
By the Editors

FLATBUG FAN

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Jo DeShundry
Oakhurst, CA

You're in luck! Spectre-BWG (414/646-4884) strikes again. They make a pickup kit for the VW Bug that involves cutting off the rear of the cab and adding a cap and pickup bed. They also sell a mini-wrecker version of this pickup. For more information on VW-based kit cars, try The Big Guide to VW Kits, published by the Big Car Book Company (602/376-1550).



EAGLE FLIER

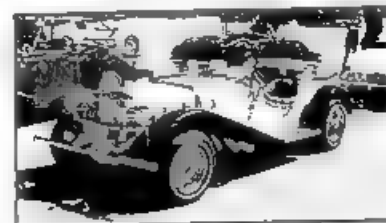
One day I was contemplating my options of escape from a mid-life crisis and ran across an ad for Eagle Manufacturing in an old magazine. They were the originators of the 250 GTO rebod for the Datsun Z cars that live on at Blue Ray and Velo Rossa. But I have always been an admirer of the 246 Dino GTS. Eagle also set out to produce a facsimile on the Porsche 914 chassis. Did this ever achieve production? Does the company exist in any form?

Dan Romeo
Palos Park, IL

The Eagle 914 rebod did make it into production and we hear from owners every now and then. Unfortunately, Eagle is out of business and the last company that we know of that made a version of that body (a knock-off of the Kelmak/Manum VW kit) was Exotic Enterprises, who made one based on a Fiero chassis. Last time we talked they said they

were no longer available.

Your best bet would be to visit kit car shows and swap meets. Scarcely one goes by that there isn't a used Kelmak/Manum/Eagle or some similar variation for sale. If you can live without the Eagle 914 chassis version (which is rare but not particularly valuable) you should have no problem finding a Dino replica of some sort. One of the nicest was the Magnum kit that used a mid-engine tubular chassis with a Mazda RX-7 engine.



GAZELLE GAL

I have been a subscriber for quite some time and enjoy your magazine. I read Mailbox every month hoping someone will write in with the problem I'm having. Well, it's been almost a year and I've yet to find someone else with the same dilemma as mine.

I recently purchased a '29 Gazelle kit car from a relative. He won it 15 years ago in Las Vegas and doesn't have any paperwork on it except for the title. It has a '69 VW engine and chassis. My problem is that I would like to do some restoration and need some Gazelle parts for it. I can't seem to locate companies that carry parts for the Gazelle. I did find a torn sticker in the engine compartment of the company that put the kit together. It reads: Lous Car Company in Valley Park, Missouri. Of course, their phone number is out of service. When I inquire at different replica companies I usually get scoffed at. I know it is not one of the real neat expensive kits like the Cobra, but it's still all mine, and if you can love a car, I sure do!

I would appreciate any information you can give me on where to find parts. If anyone knows about the company I would love to get historical background on my car.

Donna Black
Punta Gorda, FL

The Gazelle was one of the most popular kit cars of all time, trailing only dune buggies and Cobra replicas in popularity. Classic Motor Carriages (CMC) in Florida sold thousands of them in the '80s and '90s. Most were VW based but others had Pinto or Chevette running gear. Look for articles in old issues of Kit Car at swap meets (unfortunately, we don't have copies that far back). They were also sold by their Fiberfab division, and were copied by numerous other kit car companies. CMC went out of business in a big way a while back.

Your best starting place is Auto Resolution (888/888-6645) for parts and information. York Motorcars (804/798-5268) also likes Gazelles. They have many old parts on hand and are making some others. In fact, the last time we talked to them they had a Gazelle they were restoring.

HOW TO PICK UP GRILLES

I have a Frazer-Nash kit that I completed in the '70s which I enjoy driving very much. Last year I did a cosmetic restoration on the car and found that I badly needed a new chrome/plastic grille shell. Antique and Classics in New York is out of business. Can you help me?

Ron Block
Lowell, MI

We don't know of any sources for new F-N grilles, but you may be able to save yours in several ways. One idea is to have your old grille repaired and rechromed. However, we talked to Chuck at American Plastic Chrome, (734/721-1967), who told us that vacuum metalizing, which is the way they rechrome plastic parts, is best for interior parts that are not exposed to weather. So, it may not hold up that well.

Another option is to take your plastic grille to a rod or restoration shop that builds steel or aluminum-bodied custom cars. They may be able to duplicate it in metal, which could then be chromed and would stand up better. This might not be cheap, but grille shells are not that complicated, so it may be affordable.

Finally, you could always use the old grille to have a fiberglass shop pull a mold from and then make a fiberglass grille. This could be painted sil-

ver or body color with a clearcoat finish for extra gloss. Then you would be able to make others in the future. When getting estimates for custom work like this, always take your grille with you so they can see it. Estimates given over the phone often change when you walk in the door with the actual part.

INTREPID BUILDER

You guys have a great magazine, and I have only two gripes: The magazine isn't thick enough, and it doesn't get here often enough! I'm trying to find info on the Chrysler Intrepid drivetrain—I think it's called the L42 with the new engine. I'm thinking about using that for a kit and maybe supercharging it. How much power will the transaxle hold? Will it hold at least 300? What do you think the motor will put out with the supercharger? Any information will be great.

Also, in the Sept. '97 issue you showed a car called the Piranha from Russia. Have you done a piece on it yet? If so, what issue is it in? Also, how about the Finale from Pisa? Thanks for a great magazine, and keep up the good work.

Greg Parsons
Hodgen, OK

We've been getting a lot of questions on the Intrepid drivetrain. We called our sources at Chrysler and found that the version used in the 300S and LHS puts out 253 hp and is plenty strong. It's the same engine used in the Prowler, but in a front-engine/rear-drive configuration. The engine will put out more power if supercharged, but the transaxle is the weak link. It is designed for 250 lb-ft of torque and could be unreliable with a modified engine if used hard on a regular basis. The packaging is very good, being one of the few longitudinal engine arrangements using an integrated subframe with suspension. Apparently, a Dodge dealer built a twin-engine LHS with an engine in each end. With 506 hp and four-wheel-drive, it really hauled!

We covered the Piranha in our Mar. '98 edition, but it doesn't appear to have made it into production. The Finale is available from PISA (602/376-1550) and was covered most recently in our Mar. '99 issue.

THAT'LL SHO 'EM

First of all, I'd like to say thanks for providing myself and fellow enthusiasts with the kind of diverse and in-depth information that gets the job done. My interest isn't geared toward a full-blown kit,

but rather engine swaps for borderline psychotic power-to-weight ratios. One of my favorite swaps is the Shogun Ford Festiva/Taurus SHO. This is truly inspiring with its low-buck donor car and sweet-revving six. I am the owner of a late-model Toyota MR-2 which, of course, is already a mid-engine sports car. It's lighter, handles better, and is more cost effective than a Fiero. My question is, does the mid-engine donor car, coupled with a front-wheel-drive engine/transaxle, make this a match made in heaven? No adapter plates needed. No worry of overstressing the transmission. If it fits in a Ford Festiva, it has to fit in an MR-2. I don't need the trunk anyway.

How in the world do you get started on a project like this? Are there shops that specialize in custom hybrids? I figure \$2,500 for the car, and \$2,500 for a used engine and tranny. What can I expect beyond this, \$5,000 or \$10,000 more for labor and the unexpected? I'm doing this with or without you, but WITH would be a blessing!

Joseph Herr
Fl. Lupton, CO

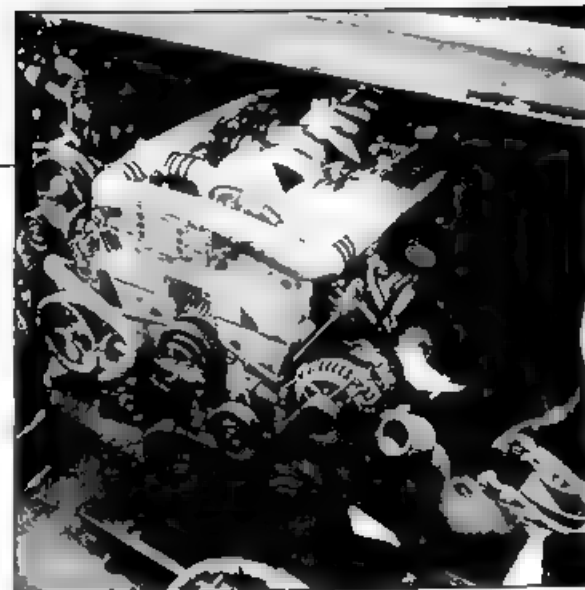
Without having your dream combo in front of us, it seems like a doable deal. However, there are a number of pitfalls to look out for. When you get the SHO engine, be sure to get the radiator, exhaust system, wiring harness, and all engine control modules as well. Also, check how much offset is in the differential to see if you will have to buy custom-made axles in addition to custom flanges.

Another important item to look into is engine weight. The SHO V-6 will probably weigh more than the Toyota

four-banger, and the MR-2 already has 57 percent of its weight on the rear wheels. Handling is likely to suffer, and you will probably need taller and stiffer rear springs and a stiffer front sway bar. The MR-2 was also marginal on having enough tire for the turbo version, so plan on wider and stickier tires for your increased output. You will also have to fabricate a shift mechanism and exhaust system, and modify the cooling system for increased capacity. If there isn't room for the SHO radiator, you may have to get a custom unit made by Griffin or Fluidyne. Use the emissions-control system from the SHO, and don't leave any parts out.

Another potential source of grief is the engine-control system. The SHO had ABS and the MR-2 did not, so there may be a compatibility problem that a computer expert could probably sort out, given enough time (many engine-control modules run a self-diagnostic when started, and if it gets a message back that the ABS is not working, you may have problems).

Also, check the height of the engine carefully. It appears to be taller than the Toyota engine, so make sure it will fit vertically as well as front-to-back. Be aware that if you have to cut out any firewalls for clearance, you'll have to put that rigidity back in, as there is no frame to take up the slack. You may need to add a rollover or subframe in the back. Your best bet on getting this done is to talk to shops that build hot rods and racing cars, who are used to swapping engines and fabricating brackets, etc. It won't be cheap, but if your heart is set on an MR-SHO it can probably be done. Remember, the Shogun Festiva-SHO swap you mentioned required a huge



KIT TECH

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Jo DeShindry
Oakhurst, CA

You're in luck! Spectre-BWG (414/646-4884) strikes again. They make a pickup kit for the VW Bug that involves cutting off the rear of the cab and adding a cap and pickup bed. They also sell a mini-wrecker version of this pickup. For more information on VW based kit cars, try The Big Guide to VW Kits, published by the Big Car Book Company (602/376-1550).



EAGLE FLIER

One day I was contemplating my options of escape from a mid-life crisis and ran across an ad for Eagle Manufacturing in an old magazine. They were the originators of the 250 GTO rebodies for the Datsun Z cars that live on at Blue Ray and Velo Rossa. But I have always been an admirer of the 246 Dino GTS. Eagle also set out to produce a facsimile on the Porsche 914 chassis. Did this ever achieve production? Does the company exist in any form?

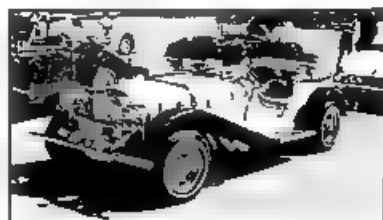
Dan Romeo
Palos Park, IL

The Eagle 914 rebodies did make it into production and we hear from owners every now and then.

Unfortunately, Eagle is out of business the last company that we know of made a version of that body (a copy off of the Kelmark/Magnum kit) was Exotic Enterprises, who were based on a Fiero chassis. When we talked they said they

were no longer available

Your best bet would be to visit kit car shows and swap meets. Scarcely one goes by that there isn't a used Kelmark/Magnum/Eagle or some similar variation for sale. If you can live without the Eagle 914 chassis version (which is rare but not particularly valuable) you should have no problem finding a Dino replica of some sort. One of the nicest was the Magnum kit that used a mid-engine tubular chassis with a Mazda RX-7 engine.



GAZELLE GAL

I have been a subscriber for quite some time and enjoy your magazine. I read Mailbox every month hoping someone will write in with the problem I'm having. Well, it's been almost a year and I've yet to find someone else with the same dilemma

I recently purchased a '29 Gazelle kit car from a relative. He won it 15 years ago in Las Vegas and doesn't have any paperwork on it except for the title. It has a '69 VW engine and chassis. My problem is that I would like to do some restoration and need some Gazelle parts for it. I can't seem to locate companies that carry parts for the Gazelle. I did find a torn sticker in the engine compartment of the company that put the kit together. It reads — Louis Car Company in Valley Park, Missouri. Of course, their phone number is out of service. When I inquire at different replica companies I usually get scoffed at. I know it is not one of the real neat expensive kits like the Cobra, but it's still all mine, and if you can love a car, I sure do!

I would appreciate any information you can give me on where to find parts. If anyone knows about the company I would love to get historical background on my car

Donna Black
Punta Gorda, FL

The Gazelle was one of the most popular kit cars of all time, trailing only dune buggies and Cobra replicas in popularity. Classic Motor Carriages (CMC) in Florida sold thousands of them in the '80s and '90s. Most were VW-based but others had Pinto or Chevette running gear. Look for articles in old issues of Kit Car at swap meets (unfortunately, we don't have copies that far back). They were also sold by their Fiberglass division, and were copied by numerous other kit car companies. CMC went out of business in a big way a while back.

Your best starting place is Auto Resolution (888/888-6645) for parts and information. York Motorcars (804/798-5268) also likes Gazelles. They have many old parts on hand and are making some others. In fact, the last time we talked to them they had a Gazelle they were restoring.

HOW TO PICK UP GRILLES

I have a Frazer-Nash kit that I completed in the '70s which I enjoy driving very much. Last year I did a cosmetic restoration on the car and found that I badly needed a new chrome/plastic grille shell. Antique and Classics in New York is out of business. Can you help me?

Ron Block
Lowell, MI

We don't know of any sources for new F-N grilles, but you may be able to save yours in several ways. One idea is to have your old grille repaired and rechromed. However, we talked to Chuck at American Plastic Chrome, (734/721-1967), who told us that vacuum metalizing, which is the way they rechrome plastic parts, is best for interior parts that are not exposed to weather. So, it may not hold up that well.

Another option is to take your plastic grille to a rod or restoration shop that builds steel or aluminum-bodied custom cars. They may be able to duplicate it in metal, which could then be chromed and would stand up better. This might not be cheap, but grille shells are not that complicated, so it may be affordable.

Finally, you could always use the old grille to have a fiberglass shop pull a mold from and then make a fiberglass grille. This could be painted sil-

ver or body color with a clearcoat finish for extra gloss. Then you would be able to make others in the future. When getting estimates for custom work like this, always take your grille with you so they can see it. Estimates given over the phone often change when you walk in the door with the actual part.

INTREPID BUILDER

You guys have a great magazine, and I have only two gripes: The magazine isn't thick enough, and it doesn't get here often enough! I'm trying to find info on the Chrysler Intrepid drivetrain—I think it's called the L42 with the new engine. I'm thinking about using that for a kit and maybe supercharging it. How much power will the transaxle hold? Will it hold at least 300? What do you think the motor will put out with the supercharger? Any information will be great.

Also, in the Sept. '97 issue you showed a car called the Piranha from Russia. Have you done a piece on it yet? If so, what issue is it in? Also, how about the Finale from Pisa? Thanks for a great magazine, and keep up the good work.

Greg Parsons
Hodgen, OK

We've been getting a lot of questions on the Intrepid drivetrain. We called our sources at Chrysler and found that the version used in the 300S and LHS puts out 253 hp and is plenty strong. It's the same engine used in the Prowler, but in a front engine/rear-drive configuration. The engine will put out more power if supercharged, but the transaxle is the weak link. It is designed for 250 lb-ft of torque and could be unreliable with a modified engine if used hard on a regular basis. The packaging is very good, being one of the few longitudinal engine arrangements using an integrated subframe with suspension. Apparently, a Dodge dealer built a twin-engine LHS with an engine in each end. With 506 hp and four-wheel-drive, it really hauled!

We covered the Piranha in our Mar. '98 edition, but it doesn't appear to have made it into production. The Finale is available from PISA (602/376-1550) and was covered most recently in our Mar. '99 issue.

THAT'LL SHO 'EM

First of all, I'd like to say thanks for providing myself and fellow enthusiasts with the kind of diverse and in-depth information that gets the job done. My interest isn't geared toward a full-blown kit,

but rather engine swaps for borderline psychotic power-to-weight ratios. One of my favorite swaps is the Shogun Ford Festiva/Taurus SHO. This is truly inspiring with its low-back donor car and sweet-revving six. I am the owner of a late-model Toyota MR-2 which, of course, is already a mid-engine sports car. It's lighter, handles better, and is more cost effective than a Fiero. My question is, does the mid-engine donor car, coupled with a front-wheel-drive engine/transaxle, make this a match made in heaven? No adapter plates needed. No worry of overstressing the transmission. If it fits in a Ford Festiva, it has to fit in an MR-2. I don't need the trunk anyway.

How in the world do you get started on a project like this? Are there shops that specialize in custom hybrids? I figure \$2,500 for the car, and \$2,500 for a used engine and tranny. What can I expect beyond this, \$5,000 or \$10,000 more for labor and the unexpected? I'm doing this with or without you, but WITH would be a blessing!

Joseph Herr
Ft. Lupton, CO

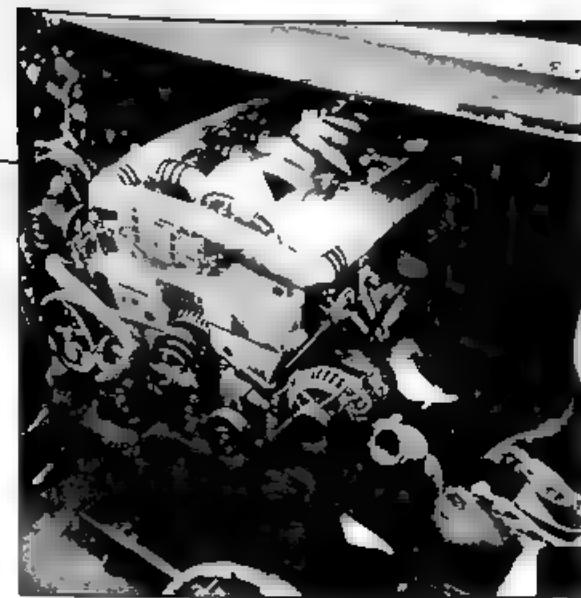
Without having your dream combo in front of us, it seems like a doable deal. However, there are a number of pitfalls to look out for. When you get the SHO engine, be sure to get the radiator, exhaust system, wiring harness, and all engine control modules as well. Also, check how much offset is in the differential to see if you will have to buy custom-made axles in addition to custom flanges.

Another important item to look into is engine weight. The SHO V-6 will probably weigh more than the Toyota

four-banger, and the MR-2 already has 57 percent of its weight on the rear wheels. Handling is likely to suffer, and you will probably need taller and stiffer rear springs and a stiffer front sway bar. The MR-2 was also marginal on having enough tire for the turbo version, so plan on wider and stickier tires for your increased output. You will also have to fabricate a shift mechanism and exhaust system, and modify the cooling system for increased capacity. If there isn't room for the SHO radiator, you may have to get a custom unit made by Griffin or Fluidyne. Use the emissions-control system from the SHO, and don't leave any parts out.

Another potential source of grief is the engine-control system. The SHO had ABS and the MR-2 did not, so there may be a compatibility problem that a computer expert could probably sort out, given enough time (many engine-control modules run a self-diagnostic when started, and if it gets a message back that the ABS is not working, you may have problems).

Also, check the height of the engine carefully. It appears to be taller than the Toyota engine, so make sure it will fit vertically as well as front-to-back. Be aware that if you have to cut out any firewalls for clearance, you'll have to put that rigidity back in, as there is no frame to take up the slack. You may need to add a roll-over or sub-frame in the back. Your best bet on getting this done is to talk to shops that build hot rods and racing cars, who are used to swapping engines and fabricating brackets, etc. It won't be cheap, but if your heart is set on an MR-SHO it can probably be done. Remember, the Shogun Festiva-SHO swap you mentioned required a huge



KIT TECH

amount of fabricating by Chuck Beck and Rick Titus, both of whom seriously know their way around a race shop. And it cost \$47,000.

BUGGY FAN

I have two questions. First, I would like to know where the dune buggy is and how much they want for it ("Salvage Secrets," Jan. '99). Second, in the Mar. '99 issue you mention in Kit Tech that Ryan Motors sells shortened VW chassis. I would like the address of this company and the cost of the chassis.

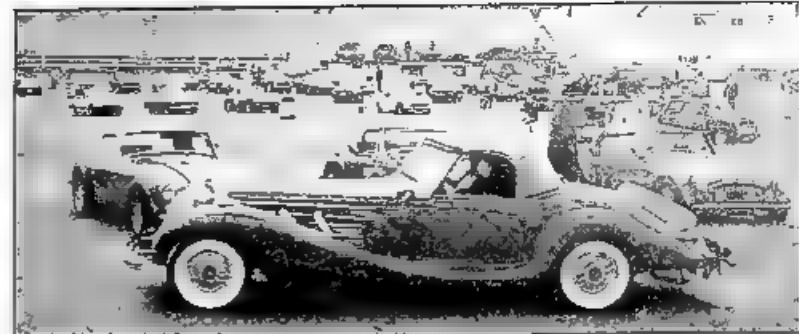
Andy Milliron
Sioux Falls, SD

The buggy was at Cowtown Truck Parts and Salvage in Arlington, Texas (817/572-3365). We don't know if they still have it, but give them a call! Ryan Motors sells VW chassis that have been shortened 12.5 inches and reconditioned for \$1,795. Write them at 2321 S. Santa Fe Ave., Vista, CA 92083, or call 760/599-6813.

JAMAICAN HOLIDAY

I recently purchased an unfinished Fiberfab Jamaican V-8 and am looking for information on this kit. I would like to find out what windshield, back glass, door-locking mechanism, etc. it uses. I am also looking for a Jamaican assembly manual. I would also be interested in finding out if there is a Fiberfab Jamaican club out there. I have always thought this was a great kit and would like to complete it in the style it was intended. It has an English chassis (maybe MG, Triumph, or Austin Healey—I'm not sure) and it is already set up for a small-block Ford engine with a C4 transmission and 9-inch rearend. Any help would be appreciated.

Lamar Meeks
Laurens, SC



The Jamaican is a personal favorite of ours as well. It was one of the best-looking kits of its era. The windshield and chrome trim were from a '63 Corvette Sting Ray coupe, and the back glass and trim were early Porsche 911/912. Side windows were from a VW Karmann-Ohia, as were the winding mechanisms. Door locks and handles could be either special Fiberfab parts or Karmann-Ohia. The door hinges were '65-'66 Ford, but we don't know which model. The door latches and strikers were '69 Chevy Impala. Headlights were Chevy II and the standard taillights were Ford Maverick (although many others were substituted).

There were two Jamaican bodies. The early ones had a hinged nose that pivoted up like a Jaguar XKE and was made to fit an English sports car chassis. Sounds like this is what you have. Later, a widened version was made to fit their own tube frame with a mixture of Corvair and Corvette suspension and a Chevy V-8. This body was also sold to fit on a VW chassis. It is identified by not having the tilt nose (a conventional hood was used instead).

We don't know of a Jamaican club, but maybe the guys at the Fiberfab Avenger/Valkyrie club (814/267-3748) would share some Fiberfab lore with you. If not, how about starting a club of your own?

BENZ EASILY

I'm writing in regard to the Heritage 500K roadster I possess. The vehicle is about 95-percent completed. I would like to find out if there are any firms in business that produce parts for this vehicle. The parts I am most interested in pertain to the body, chassis, and interior. Anything pertaining to the mechanical parts is not a problem. Any assistance in this matter will be highly appreciated.

Joel Katz
Cranford, NJ

Mercedes 500KK replicas were once very popular and built by a number of companies. The only ones we know of at this time are built by Prototype Research and Development in Canada (705/653-4525, and Indy Exotics (317/784-1119, in Indianapolis, Indiana. Their kits may differ from yours in detail, but you should be able to adapt the parts you need.

A CERTAIN FLARE

Hey, you guys talked about bending your own brake lines and installing a complete system. You said that AN fittings require a 37-degree flare on the tubing. I can't find a flaring tool for 37-degree flares. You can buy a 45-degree flaring tool just about anywhere. Where can I get a tool to do the AN flare?

John Monaco
St. Augustine, FL

For a 37-degree flaring tool, try Speedway Motors at 402/474-4411. They sell one for \$69.95, PN 910-89529. You might want to get a copy of their \$5 catalog, since they carry brake-line kits and other tools for plumbing your braking system.

KC

Have a technical question about your kit project? Send your questions to Kit Tech, Kit Car, 6420 Wilshire Blvd., Los Angeles, CA 90048, or e-mail us at kitcar@petersenpub.com.

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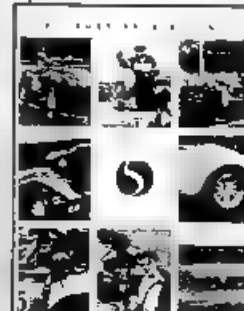


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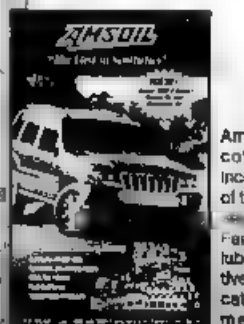
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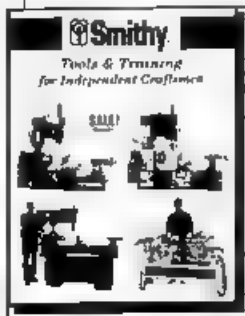
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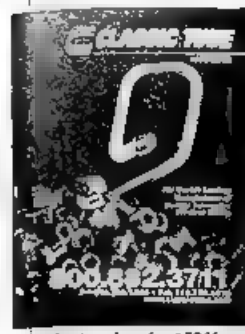
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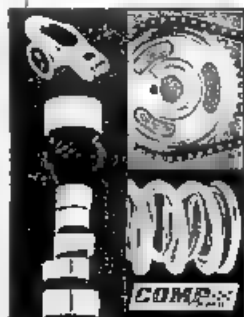
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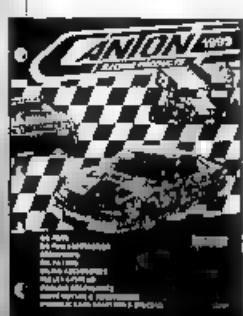
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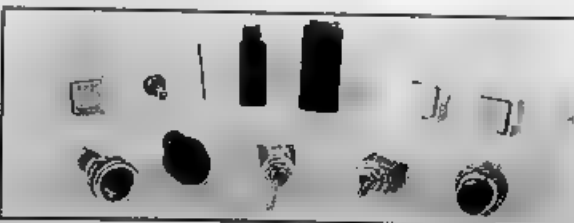
9750

LIFELINER

Cooper Tire has introduced the LifeLiner STE tire which uses Cooper's new Pentamax technology. Pentamax optimizes five critical design areas: tire shape, tread pattern, tire compounds, tire construction, and craftsmanship. These advancements have led to the LifeLiner, carrying a six-year limited warranty and a 24-hour Roadside Assistance Warranty. The STE carries a T speed rating and has a tread pattern said to provide all-weather traction, as well as being quiet. For more information, contact Cooper Tire & Rubber Co., Dept. KC, 701 Lima Ave., Findlay, OH 45840; 800/854-6288; www.coopertire.com.

THAT'S A SWITCH

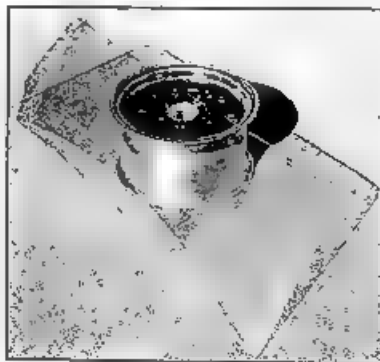
StreetWorks offers these switches which are a little out of the main stream for the builder looking for something different in the way of dash gear. Switches are available in various styles, including on/off, momentary, small toggles, sleek rocker, round and square models. The company also offers recessed buttons and key-lock switches with removable



keys. For more info, contact StreetWorks, Dept. KC, P.O. Box 270, Bozrah, CT 06334; 860/859-0513.

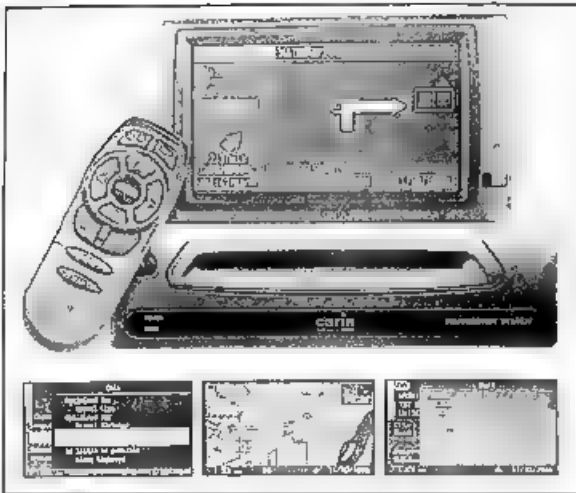
WHERE IN THE WORLD?

VDO North America's Audio Navigation Division has introduced the Carni 522 Interactive Car Navigation System. It not only provides turn-by-turn verbal and visual navigation, it can also find the nearest gas stations, restaurants, ATMs, or hotels. The unit employs GPS (Global Positioning System), vehicle speed sensing, and an onboard gyroscope to deliver navigation accuracy. For more information, contact VDO Audio Navigation, Dept. KC, 188 Brooke Rd., Winchester, VA 22604; 800/678-3279; www.vdona.com.



COBRA GLASS

Operations Plus has announced the availability of windshield replacement glass for real and replica Cobras. The glass is DOT-rated and tinted, and dimensions are based on the original frame. Suggested list price is \$250. For more details, contact Operations Plus, Dept. KC, P.O. Box 26347, Santa Ana, CA 92799; 714/962-2776.

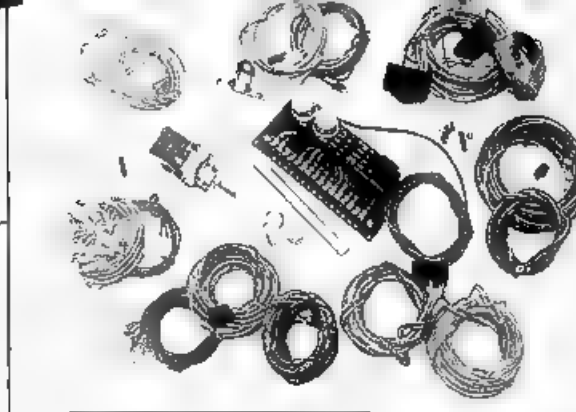


HOT REPAIRS

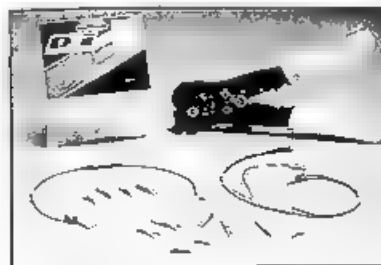
Now you can repair cracks, pits, or holes in exhaust manifolds, tailpipes, mufflers, and other components subject to high temps. Fire Seal 2000 is a ceramic-and-stainless-steel-filled putty that doesn't require mixing. It is said to stand up to fuels, oil, and other corrosive materials. Fire Seal can be applied to rough-surfaced or sand-blasted steel, stainless steel, or cast iron and, when cured, will withstand temperatures up to 2,000 degrees F. For more information, contact Restomotive Laboratories, Dept. KC, P.O. Box 1235, Morristown, NJ 07962; 800/457-6715.

SIMPLIFIED SYSTEM

Ron Francis Wire Works has developed this new simplified electrical system designed for cars without a lot of bells and whistles. The small panel has eight fuses, horn relay, headlight switch, GM column plugs, and printed and color-coded wiring. The kit is simple, but complete

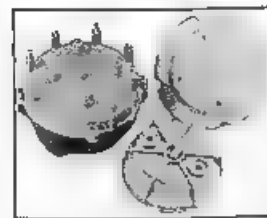


enough to be compatible with fuel-injected engines. For more info, contact Ron Francis Wire Works, Dept. KC, 167 Keystone Rd., Chester, PA 19013; 800/292-1940.



TOUGH TERMS

These durable, all-weather electrical connectors from Design Engineering are designed to improve the quality of wiring connections. Tough-Terms use a heat-shrink nylon insulation and are available in butt, spade, and ring connectors, and male and female disconnects. The units are available in numerous sizes and are temperature stable. For more info, contact Design Engineering, Dept. KC, 36960 Detroit Rd., Avon, OH 44011; 216/934-0800.



PRO-CAP

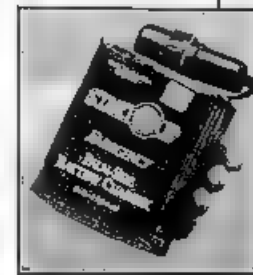
MSD's Pro-Cap is a tough distributor cap with ser-

viceable stainless steel terminals and rotor tip. It measures 5 inches in diameter with 2 inches between each terminal to prevent spark scatter inside the cap. It is injection-molded from DuPont Rynite for strength and high dielectric properties. The rotor features a deep skirt and thick vanes to prevent ionization. The cap comes with a screw-down retainer to keep plug wires firmly connected. For more information, contact MSD Ignition, Dept. KC, 1490 Henry Brennan Dr., El Paso, TX 79936; 915/857-5200; www.msdisignition.com.

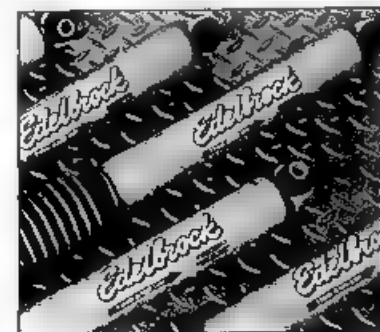


JUMP START

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SHOCKING DEVELOPMENT

Edelbrock keeps adding more and more applications to its Performer IAS shocks. They feature a patented Inertia Active System which gives a vehicle responsive handling and a smooth ride. The system differentiates between wheel and chassis movement for an unmatched ride. IAS shocks also react faster than electronically controlled units to afford precise vehicle control and stability in all conditions. For more info, contact Edelbrock Corp., Dept. KC, 2700 California St., Torrance, CA 90503; 310/781-2222.

MIDDLE MANAGEMENT

FP Performance introduces the SEFI8LO Engine Management system, with state-of-the-art electronics to allow precise control of an EFI engine's tuning. The system is a bank-to-bank fuel-injection style with a sequential EFI upgrade available as an option. It is a closed-loop system with a wide band oxygen sensor which allows it to adjust injector pulse width to match user-programmed air/fuel ratios. For more details, contact FP Performance Products, Dept. KC, One Equon Dr., Ashland, MS 38603; 614/478-7572.



HOT ROD POWER

Hot Rod magazine has joined forces with Interstate Batteries to create a line of performance-car batteries. The batteries are built with a new Pinnacle Plus Technology which is said to offer 22 percent more battery life. They employ a negative plate paste expander to improve acid circulation plus a sodium sulfate additive to help the battery more readily accept a charge and hold it longer. The grid alloy has also been enhanced with a specially formulated silver calcium, which results in increased performance and service life. For an Interstate Batteries dealer in your area, call 800/CRANK-IT, or visit www.interstatebatteries.com. **KC**

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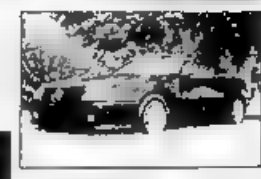
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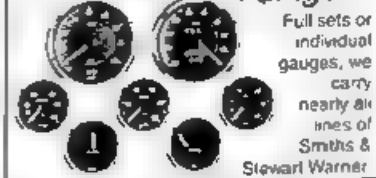
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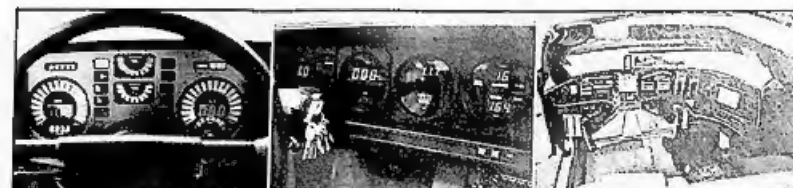
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KIT CARCHIVES

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By Harold Pace

PHOTOGRAPHY: HAROLD PACE

THE BOX WAS TOPS

Now that SUVs have become the
weapon of choice for upwardly mobile
suburban road warriors, it's nice to
look back and realize that the kit car
industry was way ahead of the trend.
Sporty station wagons are a genre of
their own, with the Volvo P1800ES,
Vega GT wagon, and Aston-Martin
DB-5 and DB-6 Shooting Brake com-
ing immediately to mind. And mini-
vans had been built by VW and Fiat
long before Chrysler picked up on the
concept. But our feature kit this issue
was a true predecessor to the current
crop of attractive, sporty SUVs, just
in a smaller, more practical size. It
was called the Brubaker Box.

Curt Brubaker was an industrial
designer with a company called The
Brubaker Group. He had graduated
from Art Center College of Design in
California, and spent time at General
Motors before going out on his own.
As he looked around the Southern
California car scene of the early '70s,
he saw the popularity of two niche
vehicles. One was the VW Beetle,
which was practical, easy to park, fun
to drive, solidly built, and inexpen-
sive. The other was the van which,
although great for ferrying people and
stuff around, was large, visually
unappealing, and awkward to park
and drive. The Brubaker Box was an
attempt to meld the two into a mod-
ern transportation module.

The initial concept was that the
Box would be a kit car based on the
VW Beetle chassis and running gear.
At some point in the design process,
Brubaker became wary of the kit
industry and decided there was more
of a market for fully assembled Boxes
on new VW running gear. This would
later prove to be the project's undoing.

The Box itself was an incredibly
appealing shape that still looks futur-
istic today. The van-like body was very
close in overall width and height to the
Bug on which it was based, but had
much more interior room for hauling
surfboards, surfers, beer coolers,
motorcycles, and other necessities of
life in Southern California, circa 1972.

Approaching from the driver side,
onlookers would be surprised by the
lack of any sort of door. Ingress was
by a single large sliding door on the

passenger side. When opened, it
would pop out and then slide back
along a groove on the roof. This
allowed it to clear curbs, but not slide
out far enough to bang into neighbor-
ing vehicles. The idea behind the sin-
gle door was to make the body stiffer,
and thereby safer in a crash. The
box-like construction resulted in more
interior room. An L-shaped couch in
back provided seating for three, and
the front seats were buckets. The
back and passenger-side front seats
were quickly removable for hauling
larger objects. And the body was
made with double-wall construction
to reduce road noise.

The downsides included limited
visibility and an odd seating position.
The front seats were only a little for-
ward of their position in the Beetle,
yet the windshield started at the
front bumper 3 feet away. This gave
the feeling that you were steering
from the back seat. And the rearward
placement restricted visibility of over-
head traffic signals. The pedal assem-
bly was relocated forward from the
standard position and the steering
column was shortened. And, although
the new body reduced the Beetle's
susceptibility to side winds, the heav-
ier Brubaker was slightly slower than
a stock VW.

There were also plans for future
improvements that were never built,
including a roof-mounted storage bin
that converted into a small boat.
Optional interior modules were
planned that would have featured
hide-away beds, storage units, and
cooking appliances.

Although great plans were laid for
production and much favorable atten-

tion was bestowed by the media, the
Brubaker Box project collapsed.
Although VW had at one time
expressed interest in supplying chas-
sis for the project, they relented,
which would have required Brubaker
to buy new Beetles and remove the
bodies (to sell to repair shops) before
embarking on construction. This
pushed the price beyond the antici-
pated \$3,600 to \$4,000, so only a
reported three original Brubaker
Boxes were made before the project
was scuttled in 1972.

RESURRECTION

Just when it looked like the project
was a goner, the kit car industry
stepped in and saved the day. The
rights to the Brubaker Box were
bought by AutoMecca Industries in
Tujunga, California, in 1973.
Renamed the Roamer Sports Van, it
differed in a few details from the origi-
nals. They were offered in a wide
range of gelcoat colors and interior
fabrics, including plaids, floral prints,
and paisleys (now back in fashion
after a long absence). Front seats were
usually stock VW or Hunter custom
buckets. The windshields were Pinto,
and the front lights, rear window, and
side glass were from the AMC Grem-
lin. The rear lights were Toyota.

Unlike the Brubaker Box, the
Roamer could be bought in kit or
completed form for \$2,200 to \$5,500.
Engine access was difficult in early
versions, but a hinged cover for check-
ing oil was contemplated. Access from
the single side door proved to be an
exercise in agility, and ventilation
from the sliding side windows was
marginal. This was helped by remov-





KIT CARCHIVES

Alexander, who is the Brubaker Box guru, and he has a cool Web page to prove it (www.brubakerbox.com). His Box is named Rutabaga and was built by AutoMecca on a '67 VW chassis. Interestingly, the paperwork that came with it indicated that it was built in Redondo Beach, California. Another location for the mobile AutoMecca company? Rutabaga is silver with black trim, and Rick and his family are working on restoring it to like-new. And he has other great news—he has found and purchased the AutoMecca molds! So maybe the Box will be back again...good old kit cars are hard to keep down.

KC



LETTERS TO KIT CARCHIVES

TALON TALES

I was just looking through an old *Kit Car* magazine and came across an article featuring the Talon GT 2+2. I was wondering if anyone produces this car now. It is the only exotic-looking 2+2-seater I've ever seen and I would be interested in building one. Please get me any information available.

Joseph B. Chick
Norwich, CT

The Talon was a rare breed—a kit car with room for more than two passengers. It started out as the Mantula GT, designed by Ed Mantula in the '70s. The Mantula was strictly a two-seater, but had similar styling and the distinctive pivoting cockpit top. The Mantula GT was later built in Holland. The Talon was more practical, with two extra seats and no need to shorten the VW chassis. It came out about 1980, and was built by Talon Automotive Products in Panorama City, California. It had a low 2.8 coefficient of drag and a steel subframe for increased rigidity. Standard equipment included power or assisted tilting canopy roof, sunroof, digital read-out dash, and reclining seats. It was sold in kit or fully assembled form. The Talon remained in production into the mid-'80s, but not many were sold, and they remain pretty rare today. Good luck finding one—your best bet is to attend kit car shows and swap meets, and keep your eyes open.

Keep those letters coming in to: Kit Carchives, *Kit Car* Magazine, 6420 Wilshire Blvd., Los Angeles, CA 90048-5515, or e-mail us at kitcar@petersenpub.com. Thanks for your support!

ing the sunroof, which was held in by six rubber hooks. Energy-absorbing bumpers were made of fiberglass and industrial plywood.

By 1977, a reorganized AutoMecca had moved to Chatsworth, California, under the ownership of President Mike Hansen. They had apparently built about 35 cars in the ensuing four years and were ready to get more serious about production. They offered to custom-build Roamers to the customer's specifications for under \$6,000, but this did not include a VW donor car. Bare-bones kits now started at \$2,800, with a deluxe model going for \$3,950. Options included stereo systems, custom ice chests, and porthole windows for the sides.

A little known fact is that the Roamer was also offered on the VW Thing chassis which provided more ground clearance for occasional off-road use. There was even a proposed Baja Box, which was an off-road racing version of the Roamer (a standard

Roamer finished Seventh in the SCORE off-road championships in its class). The AutoMecca Roamers were produced in quantity, but exactly how many were built is unknown. One estimate is as high as 1,500 kits, but they are rare today. If anyone knows when AutoMecca stopped production, please let us know.

I was thrilled to see a Box at the Carlisle kit car show this year. It belongs to Rick



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